BACCALAUREATE NURSING STUDENTS' LIVED EXPERIENCE OF HIGH-FIDELITY PEDIATRIC SIMULATION: A HERMENEUTIC PHENOMENOLOGICAL STUDY

By

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Abstract

Changes in nursing educational programs have led to the incorporation of high-fidelity simulation (HFS) into clinical teaching, yet little is known about students' experiences with this teaching-learning modality. Therefore, this hermeneutic phenomenological study was conducted to examine the lived experience of HFS for undergraduate nursing students in the context of pediatric nursing care. In-depth interviews were carried out with 12 students and were analyzed for themes using the approach of van Manen (1998). The essence of the experience is that it was *eye-opening* for the students. It was eye-opening in two ways. It was *a surprisingly realistic nursing experience* as reflected in the following themes: *perceiving the manikin as a real patient, saving my patient's life, feeling like a real nurse,* and *feeling relief after mounting stress*. It was *a surprisingly valuable learning experience* as reflected in the following themes: *increased awareness of the art and science of nursing, increased recognition of the importance of teamwork, feeling more prepared for clinical practice,* and *wanting more simulation experiences*. The findings from this study can be used to inform nursing education.

Keywords: high-fidelity simulation, clinical simulation, nursing education, pediatric clinical, nursing student(s), phenomenology

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Table of Contents

List of Figures

Chapter 1: Introduction

Nursing education programs have been challenged to meet the dynamic needs of students in ever-changing academic and health care environments. Particularly, increasing demands on educational programs and changing clinical milieus have created noticeable difficulties in obtaining high quality inpatient pediatric clinical experiences that meet students' learning needs (Wilford & Doyle, 2006). This has led to fewer opportunities for nursing students to work with acute care pediatric patients (Bultas, 2011). Consequently, students receive less pediatric clinical experience, yet are still expected to proficiently care for high acuity pediatric patients.

As nursing educators, my colleagues and I were often confronted with difficulty in providing quality clinical experiences for students. To address this challenge, we frequently brainstormed ideas and examined current trends in educational methods, seeking ideas for meaningful learning experiences for students. As a result, to facilitate valuable educational opportunities and to keep pace with rapid changes in health care and nursing education, the school of nursing where I worked introduced high-fidelity simulation (HFS) into the undergraduate baccalaureate nursing curriculum. More specifically, HFS was incorporated into a pediatric clinical course. This was the first course in the curriculum where HFS was a mandatory requirement for students. The decision to make HFS a compulsory component of the pediatric clinical course resulted from a need for students to have exposure to complex and challenging pediatric health care and a need for students to meet the course objectives.

As a novice nursing educator and a technology enthusiast, I examined the literature on HFS to familiarize myself with this teaching and learning method. From the literature, I gained an understanding of the benefits and disadvantages of this teaching method. I also came to realize that there was a gap in the existing research; there was a dearth of research on nursing students' experiences with simulation. I desired to understand what pediatric clinical simulation would be like for them and how the simulated learning would make them feel. As I reflected on HFS and nursing student learning needs, I realized the student lived experience of HFS was not well understood. I was intrigued and believed this would be a beneficial research topic. Therefore, I embarked on a journey to understand nursing students' lived experience of HFS.

Clinical Simulation Defined

In order to understand this research it is necessary to first understand key terminology; namely, simulation, fidelity, low-fidelity simulation (LFS), and HFS. Simulation in its simplest form, as defined in Taber's Cyclopedic Medical Dictionary, is "An educational or technological model of an actual situation (such as cardiac arrest) that is used to train new students" (Venes, 2009, p. 2129). This definition encompasses traditional forms of nursing education simulation, including static manikins and role-playing, and newer, more technical forms of HFS (Sanford, 2010).

Fidelity refers to the degree to which the equipment used for simulation matches reality. There are two types of fidelity: low and high (Cant & Cooper, 2010). LFS involves low technology static task equipment or what often is referred to as trainers. This type of simulation is usually used for simple techniques and procedures and does not

have physiological or communication features. Alternatively, HFS involves advanced technological computerized life size manikins that can be programmed to respond verbally and physiologically. This type of simulation creates physical reactions, such as pulses, breath and heart sounds, pupillary reactions, blood pressure changes, and allows users to interact with the simulated patient as they would in a real clinical environment (Maran & Glavin, 2003). Hence, HFS is used to realistically reproduce clinical situations in a safe learning environment where enhancement of skills, knowledge, and decision making can be achieved by learners (Solnick & Weiss, 2007).

Significance to Nursing

Simulation is not a new teaching modality and has been used for years in different disciplines. Simulation has been used in nursing education for decades. Practicing psychomotor skills, such as dressing changes and intramuscular injections on stationary manikins or inanimate objects, and using role play to illustrate therapeutic communication skills are examples of simulation. This type of simulation is basic, however, and does not involve high technology. The use of high technology simulation in education first became prominent in the field of aviation. It was introduced during World War I (Ward-Smith, 2008) and is still being used today to train pilots for simulated high-risk safety scenarios (Sanford, 2010). High technology simulation is also used in other fields, such as engineering, nuclear power, and the military (Haskvitz & Koop, 2004; Weinberg, Auerback, & Shah, 2009). This type of simulation, however, is relatively new to health education. Medicine incorporated HFS learning into curricula within the last 15 years. For nursing, HFS is even more recent (Kaplan & Ura, 2010).

In 2003, the National League for Nursing (NLN), a professional association in the United States dedicated to promoting excellence in nursing education, approved the use of simulation for nursing education as a teaching modality to help prepare students for complex clinical environments (Sanford, 2010). In 2007, the NLN began a project called the Simulation Innovation and Resource Center (SIRC) that brought together educators from the United States, Canada, Norway, Australia, Chile, Japan, Scotland, and China to promote and advance simulation in nursing education (Hovancsek et al., 2009). The Canadian Association of Schools of Nursing (CASN), a special interest organization dedicated to promoting nursing education and scholarship in Canada, also supported the move toward HFS in nursing education. In 2010, CASN held a national nursing education summit to consult on nursing education for today's increasingly complex health care environment. Participants at the summit agreed that a priority action would be to foster innovative initiatives, such as HFS, to sustain an appropriately prepared nursing workforce (CASN, 2010).

The impetus for the increase in popularity of simulation in nursing education comes from two forces:

1. Recent and predicted future changes in clinical environments. Since 1975, health care expenditures in Canada have steadily increased and future costs are predicted to continually rise (Canadian Institute for Health information [CIHI], 2013a). This persistent rise in health care costs and the demand on federal and provincial budgets to meet these fiscal requirements have led to questions regarding the sustainability of Canada's health care system (Bhatia & Orsini, 2013). With this challenge in mind, efforts

have been focused on reducing health care costs (Falk, Mendelsohn, Hjartarson, & Stoutley, 2011). Cost reduction efforts have led to decreases in acute care admissions and length of stay within Canadian hospitals. Between 1995-1996 and 2011-2012, acute care hospital inpatient admissions decreased by 31% both nationally and in Newfoundland and Labrador (CIHI, 2013b). These decreases are indicative of all hospital admissions and as such pediatric admissions are included in these statistics.

The reduction in acute care admissions due to cost saving measures is exacerbated in the area of pediatric health care because of a declining pediatric population. Between 1983 and 2013 the number of children under the age of 15 in Canada has steadily declined and a continual decline is predicted well into the 2030s (Statistics Canada, 2013). This decrease in population has directly affected pediatric inpatient hospital admissions in Newfoundland and Labrador as admissions have steadily decreased from 3,000 to 2,400 per year since 2000-2001 (CIHI, 2013c).

Coincident with fewer pediatric admissions is higher acuity pediatric inpatients. Currently, children who are admitted to health care facilities tend to require high level or complex nursing care (Birkhoff & Donner, 2010). Very sick or unstable pediatric patients may not be suitable for nursing student assignment (Bultas, 2011). The decreased pediatric admission rate along with high acuity is creating difficulties in obtaining student learning opportunities.

2. Increased student enrolment in nursing programs. Accessing clinical experiences is further challenged by the increased number of students in nursing programs. From 1999-2000 to 2011-2012, annual enrolment in entry-to-practice

registered nursing programs in Canada has increased from 10,472 to 15,128 (Canadian Nurses Association & CASN, 2013). Likewise, admissions into baccalaureate nursing programs within Newfoundland and Labrador have increased. From 2007-2008 to 2011-2012, the admission rate increased from 257 to 293 students per year (Canadian Nurses Association & CASN, 2013). This increase has directly amplified the need for student pediatric clinical experiences. At the school of nursing where I work there are very few acute pediatric hospital beds for the large number of students completing pediatric clinical annually. This translates into a need for student clinical placements that far exceeds the capacities of our available clinical sites. As a result, there are shortages in pediatric clinical placements for students.

The changes in the clinical environment coupled with more students in the system make the traditional approach of nursing students gaining pediatric clinical experience through hands-on care in inpatient acute care facilities no longer realistic or feasible (Bultas, 2011). As such, alternative teaching modalities are needed to make student learning opportunities available in pediatric care (Parker et al., 2011). Innovative teaching modalities, such as HFS, are not only interesting, but also necessary to provide quality nursing education and to prepare nursing students for practice (Bambini, Washburn & Perkins, 2009; CASN, 2010; Landeen & Jeffries, 2008; Lasater, 2007; Seropian, Brown, Samuelson-Gavilanes, & Driggers, 2004; Weinberg et al., 2009).

As a result of educational regulating bodies endorsing HFS as a teaching and learning method for preparing nursing students for today's workforce, there has been a growth of HFS in nursing education (Cant & Cooper, 2010). Although there is

quantitative research to support HFS as valuable for student learning, we know little about what it is like for students to participate in HFS. Understanding the lived experience of HFS is important as we continue to build on our knowledge of the effectiveness of this innovation in nursing education.

Research Purpose

The purpose of this research was to examine undergraduate baccalaureate nursing students' lived experience of HFS within the context of undergraduate pediatric clinical practice. The intent was that this research would provide a better understanding of nursing students' experience in participating in clinical simulation, which ultimately could inform this teaching approach.

Research Question

What is the lived experience of high-fidelity pediatric clinical simulation for undergraduate baccalaureate nursing students?

Outline of Thesis

This thesis is divided into six chapters. In the present chapter the background information and the rationale for the study were introduced, including the purpose and research question. In Chapter 2, a review of the literature on HFS is undertaken and includes the history of simulation in education and the quantitative and qualitative literature on HFS in nursing education. In Chapter 3, the methodology and methods for this study are presented and include a description of hermeneutic phenomenology and the participants, setting, high-fidelity pediatric clinical simulation, recruitment of participants, research activities of data collection and analysis, rigor of the study, and

ethical considerations. In Chapter 4, the study findings are discussed. The chapter consists of a description of participant characteristics, as well as a full interpretation of the lived experience of nursing students who participated in a pediatric HFS nursing care situation will be presented through the following themes: eye-opening experience, surprisingly realistic nursing experience, surprisingly valuable learning experience, perceiving the manikin as a real patient, saving the patient, feeling like a real nurse, feeling relief after mounting stress, increased awareness of the art and science of nursing, increased recognition of the importance of teamwork, feeling more prepared for clinical practice, and wanting more simulation experiences. In Chapter 5, the findings are discussed in relation to other current research on HFS. In Chapter 6, implications of the findings for nursing education, nursing practice, and research are presented along with an overview of the strengths and limitations of the study.

Chapter 2: Literature Review

The focus of this research was to understand what the experience of HFS in a pediatric clinical course was like for undergraduate baccalaureate nursing students. Therefore, a comprehensive literature review was completed to determine what was known about HFS as a pedagogical method in baccalaureate nursing education. The purpose of this chapter is to present what I gathered from the literature, including an overview of the history of simulation in education and of research findings about the use of HFS in nursing education programs.

Multiple academic electronic databases, including CINAHL, The Cochrane Library, PubMed, ERIC, Academic Search Premier, and PsychINFO, were searched to find relevant scholarly articles. Non-academic approaches such as Google, Google Scholar, Ingenta Connect, and Yahoo were also used to further search for pertinent literature. The keywords identified and used to search the literature were simulation, high-fidelity simulation, computer simulation, health education simulation, human simulation, patient simulation, clinical simulation, simulation in learning, simulation in education, nursing education, nursing teaching modalities, pediatric clinical education, pediatric education, nurse(s), nursing student(s), qualitative and simulation, quantitative and simulation, and phenomenology. Citations retrieved were limited to English language articles. Despite finding articles relevant to simulation in nursing education dating back to 2001, the majority of the literature was published more recently, within the last 7 years.

Most of the articles retrieved from the literature were review articles. Of the research articles retrieved, 24 involved quantitative methods, six involved qualitative methods, and 13 involved mixed quantitative and qualitative methods. The findings from the mixed methods studies were mainly quantitative with a small qualitative component. The literature review is presented under the following three major categories: history of simulation in education, quantitative research, and qualitative research. Findings from the mixed methods research are incorporated into the quantitative or qualitative review as applicable.

History of Simulation in Education

For decades, simulation has been used to teach and train students. Good and Gravenstein (1989) noted that simulation dates back to Roman medieval times when warriors practiced swordsmanship on suspended figures holding shields. Centuries later, higher technological simulation became prominent during World War I to train pilots and other military personnel (Ward-Smith, 2008). Other fields such as aviation (Cumin & Merry, 2007; Sanford, 2010; Weinberg et al., 2009) and nuclear power also have been utilizing this teaching method for years (Haskvitz & Koop, 2004). The integration of simulation into health education has been much slower and dates back to approximately the mid-20th century. Cooper and Taqueti (2008) presented a history of simulation in clinical education and training. They noted that the earliest use of HFS was in anaesthesiology medicine in the early 1960s. For the time, the anaesthesiology HFS manikin was quite advanced with hybrid digital and analogue computerized operation. Yet, the HFS manikin did not gain wide acceptance until much later (Bradley, 2006). It

was not until the late 1980s and early 1990s that HFS became popular for medical anaesthesiology teaching (Bradley, 2006; Cooper & Taqueti, 2008; Good, 2003). This increased interest in using simulation in medical teaching subsequently prompted industry to manufacture high technology simulators that were suitable for other health educational teaching as well (Good, 2003).

Further interest in using simulation in medical education was generated by changes in medical education programs in the United States. In 1996, the Association of American Medical Colleges (AAMC) began a project to assist medical schools in addressing a concern that physicians were not fully prepared for practice upon graduation (The Medical School Objectives Writing Group, 1999). Consequently, changes to medical education were instituted to prepare high-quality and safe physicians (American Medical Association, 2007). HFS was seen as an alternative method of providing sound education to undergraduate and postgraduate medical students to meet their educational needs. It was also seen as a feasible means of continuing education for practicing physicians (Bradley, 2006).

Soon after it was introduced in medical education, HFS also became popular in nursing education (Kaplan & Ura, 2010; Landeen & Jeffries, 2008; Seropian et al., 2004). Similar to the reasons for it becoming popular in medicine, the increased use of HFS in nursing education was due to the need to enhance clinical experiences for the provision of safe patient care (Seropian et al., 2004). In 2003, world leaders in nursing education, with guidance from the NLN in the United States, created the SIRC (Hovancsek et al., 2009).

The SIRC brought together educators to promote and advance simulation in nursing education.

Within Canada, in 2010, the CASN advocated for HFS. CASN (2010) contended that to adequately prepare nursing graduates for increasingly complex health care environments and complex multifaceted patient care situations, educators must increase the use of quality HFS in nursing curricula. In recent years, prominent educators also have advocated for HFS. For instance, Benner, Sutphen, Leonard, and Day (2010) maintained that profound changes in nursing education were occurring and would continue to occur as educators prepare nurses for entry level practice. Those authors proposed that graduate nurses need to be prepared to practice safely and adeptly in dynamic health care situations. They suggested that pedagogies such as simulation can improve connections between classroom and clinical in order to better prepare future nurses. Such endorsements bode well for escalating use of HFS within nursing education curricula. Indeed, in recent years, there has been a rapid increase in HFS in nursing education (Kaplan & Ura, 2010).

Quantitative Research

Results from quantitative research studies in which HFS was examined in relation to nursing education are categorized under the following topics: learner satisfaction, critical thinking, learning, confidence, realism, and limitations of simulated learning.

Learner satisfaction. Learner satisfaction with simulation or similar concepts, such as enjoyment, value, and usefulness, has been examined in a number of studies. Consistently, when students were asked about their experience with HFS, a majority

indicated that they were (a) satisfied with it (Lewis & Ciak, 2011; Parker et al., 2011), (b) enjoyed it (Davies, Nathan, & Clarke, 2012; Wotton, Davis, Button, & Kelton, 2010), (c) thought it was valuable (Howard, Englert, Kameg, & Perozzi, 2011), or (d) thought it was useful (Traynor, Gallagher, Martin, & Smyth, 2010).

However, when satisfaction was examined across different types of simulated learning, the findings were more variable. Jeffries and Rizzollo (2006) investigated students' satisfaction with three different types of simulated learning experiences: HFS, LFS with static manikins, and LFS operationalized as a pen and paper case study. They found that the group of students who participated in HFS had a significantly higher level of satisfaction with their learning than did the two LFS groups. Butler, Veltre, and Bracy (2009) also found that students who experienced HFS had significantly higher satisfaction with learning than did students who experienced LFS. Other researchers found that HFS did not make a difference to student satisfaction. Alfes (2011) and Erickson-Megel et al. (2012) found that learner satisfaction with simulated learning was high regardless of type of simulation used, but there were no statistically significant differences in learner satisfaction for HFS versus LFS learning. Similarly, Tosterud, Hedelin, and Hall-Lord (2013) found that students were satisfied with their learning experience regardless of whether it was HFS, LFS with static manikins, or LFS with a pen and paper case study. However, surprisingly and in contrast to the findings of others that student satisfaction with HFS was at least equal to (Alfes, 2011; Erickson-Megel et al., 2012) and in some cases greater than with LFS (Butler et al., 2009; Jeffries & Rizzollo, 2006), Tosterud et al. (2013) found that students who experienced LFS with a

pen and paper case study were significantly more satisfied with their learning method than were the students who experienced LFS using static manikins or experienced HFS. The authors suggested that these findings may be due to pen and paper being the most familiar learning method for university students and the students possibly preferred the learning strategy that they were accustomed to.

Critical thinking. Development of critical thinking, a skill needed for competent clinical practice, is a goal of undergraduate baccalaureate nursing education (CASN, 2011). This important cognitive skill has been examined in a number of studies about simulated learning and, consistently, when asked about their perspectives, student responses have been overwhelmingly positive. Students have indicated that HFS improves critical thinking in relation to client care situations (Casida & Shpakoff, 2012; Guhde, 2011; Horan, 2009; Howard et al., 2011).

Students' perceptions about HFS and critical thinking are consistent with the findings of an experimental study in which HFS was examined for effectiveness (Sullivan-Mann, Perron, & Fellner, 2009). Pre-tests and post-tests were used to examine critical thinking before and after experiencing HFS. One group participated in two HFS experiences and the other group participated in five HFS experiences. Prior to the HFS experiences there were no statistical differences in critical thinking scores between the two groups; after the HFS the group that experienced five HFS had an increase in critical thinking scores. This suggests that a greater number of HFS experiences are needed to improve student critical thinking skills. Although that study provides evidence to support the value of HFS in enhancing student critical thinking scores, there also is evidence that

HFS is not superior to traditional pedagogies for increasing students' critical thinking levels. In several studies, student critical thinking scores were not better after experiencing HFS than after (a) traditional lecture based learning (Brown & Chronister, 2009; Ravert, 2008), (b) case study based learning (Goodstone et al., 2013), or (c) group discussion based learning (Ravert, 2008).

Learning. Simulation also has been examined for its value to other aspects of undergraduate nursing student learning in particular, with respect to knowledge acquisition and competent practice. Consistently, students have indicated that HFS had a positive impact on their learning. For instance, in various studies, a majority of students perceived that HFS improved their (a) acquisition of knowledge from didactic teaching (Horan, 2009; Howard et al., 2011; McCaughey & Traynor, 2010; Wotton et al., 2010); (b) acquisition of technical nursing skills (Feingold, Calaluce, & Kallen, 2004); (c) medication administration (Bearnson & Wiker, 2005; Pauly-O'Neill & Prion, 2013); (d) provision of care in emergency patient situations (Childs & Sepples, 2006; Horan, 2009); (e) management of patient care, in terms of organizing, prioritizing, and delegating care (Kaplan & Ura, 2010; Traynor et al., 2010); and (f) clinical decision making (Feingold et al., 2004; Jeffries & Rizzolo, 2006).

Findings from some experimental studies are consistent with nursing student perceptions that HFS improves learning. For instance, Elfrink, Kirkpatrick, Niminger, and Schubert (2010) and Lewis and Ciak (2011) examined changes in student knowledge using multiple-choice testing before and after a HFS experience. Both studies showed significant gains in knowledge scores in the post-test, indicating that knowledge

improved with HFS. Improved learning was also demonstrated when HFS was compared to more traditional methods of teaching and learning. Both Grady et al. (2008) and Kirkman (2013) examined HFS and LFS for impact on learning psychomotor skills. Grady et al. (2008) examined LFS using static manikins and Kirkman (2013) examined LFS using lecture based learning. However, students retained more knowledge and demonstrated higher psychomotor skill performance with the HFS training than with either of the LFS training.

To the contrary, in other studies, HFS has not been shown to improve learning over traditional pedagogical methods. Parker et al. (2011) compared knowledge outcomes for traditional clinical learning with knowledge outcomes for hybrid learning that utilized HFS in conjunction with traditional clinical learning. Finding no statistically significant difference between the learning methods, the authors noted that the study was a small pilot project, which may have precluded a difference from being detected. However, similar results were documented by others. Jeffries and Rizzollo (2006) compared HFS, LFS using static manikins, and LFS using pen and paper case studies. They found no statistically significant differences in learning outcomes among the three groups. Schlairet and Pollock (2010) examined difference in nursing students' knowledge acquisition after participating in either a HFS clinical learning experience or a traditional hands-on clinical experience. They found that students in both the groups gained knowledge, but knowledge scores between the groups were equivalent.

Confidence. A crucial outcome of nursing education is the formation of self-confidence and confidence in skills and abilities (Perry, 2011). Such confidence is

essential to a smooth transition from nursing student to registered nurse and to the provision of competent care (Association of Registered Nurses of Newfoundland and Labrador, 2013). Since the development of confidence is so integral to nursing education, student confidence after HFS learning has been examined in many studies. Most often a majority of students have reported that HFS increased their (a) overall confidence level (Bantz, Dancer, Hodson-Carlton, & Van Hove, 2007; Horan, 2009; Lewis & Ciak, 2011; Traynor et al., 2010) and (b) confidence in relation to specific skills in clinical practice, including administering medication (Bearnson & Wiker, 2005), using clinical judgment (McCaughey & Traynor, 2010), and working as a team and prioritizing and delegating patient care (Kaplan & Ura, 2010). However, in one study less than half of the students thought that HFS increased their overall confidence (Feingold et al., 2004).

Outcomes for student confidence also were mixed when HFS was compared with LFS in empirical studies. Both Alfes (2011) and Butler et al. (2009) found that student confidence levels were higher after experiencing HFS compared to experiencing LFS with static manikins. However, other investigators found that HFS was not superior to LFS for student confidence. For example, Jeffries and Rizzollo (2006) examined students' confidence in their ability to care for post-operative patients after experiencing either HFS, LFS with static manikins, or LFS with a pen and paper case study. The students who experienced HFS or LFS with static manikins had significantly greater confidence levels than did the students who experienced LFS with a pen and paper case study. However, there was no difference in confidence levels between the students who experienced HFS and those who experienced LFS with static manikins. Likewise, Blum,

Borglund, and Parcells (2010), Erickson-Megel et al. (2012), and Tosterud et al. (2013) found that student confidence levels were not different between HFS learning and LFS static manikin learning.

Realism. HFS, in its inherent nature, is created to closely resemble real patients. The equipment used in HFS is vastly technical and can be programmed to verbally and physiologically respond to simulate patient situations. Because it is made to resemble a human patient, it is not surprising that many nursing students who participated in that type of learning perceived it to be realistic (Davies et al., 2012; Feingold et al., 2004; Howard et al., 2011; Kaplan & Ura, 2010; McCaughey & Traynor, 2010).

Furthermore, in studies in which HFS was compared with LFS, most often students reported that HFS was more realistic than LFS (Butler et al., 2009; Grady et al., 2008; Jeffries & Rizzolo, 2006). Interestingly, in one study students who participated in LFS with a pen and paper case study had significantly higher scores on realism than did students who participated in LFS using static manikins or participated in HFS (Tosterud et al., 2013), suggesting that they found the pen and paper case study more realistic.

Limitations of simulated learning. Within the quantitative literature, the main limitation of HFS which has been identified is with respect to the complexity of the equipment. Nursing faculty have reported that because of the complexity, extra time and commitment are required to incorporate HFS into teaching (Feingold et al., 2004; Nehring & Lashley, 2004; Tucker, 2013). Faculty members in one study thought that the amount of time it takes to become proficient in using HFS as a teaching modality

outweighs its educational effectiveness (Tucker, 2013). Furthermore, the complex technology can be intimidating to instructors (Nehring & Lashley, 2004).

Qualitative Research

Findings from qualitative research studies in which HFS was examined in relation to nursing education are categorized under the following two sections: qualitative descriptive research and phenomenological research.

Qualitative descriptive research. Several themes were identified in the findings of the descriptive studies. Some were consistent with themes noted in quantitative studies, namely learning, confidence, and realism. However, two themes, communication and teamwork, had not been addressed in the quantitative research.

Learning. Similar to many of the quantitative findings, the qualitative results indicated that HFS enriched student learning. HFS enhanced learning by allowing students to be actively engaged in the learning experience (Traynor et al., 2010) and by linking theory to practice (Lasater, 2007; Ogilvie, Cragg, & Foulds, 2011; Wotton et al., 2010). More specifically, HFS strengthened learning with respect to (a) completing health assessments (Bambini et al., 2009; Ogilvie et al., 2011), (b) prioritizing nursing care (Bambini et al., 2009), (c) understanding rationales for nursing interventions (Wotton et al., 2010), and (d) understanding medication administration (Bearnson & Wiker, 2005).

Confidence. As with many findings in quantitative studies, findings from qualitative studies indicate that HFS increased student confidence (Bambini et al., 2009; Garrett, MacPhee, & Jackson, 2010; Wotton et al., 2010) with respect to clinical practice

(Erickson-Megel et al., 2012; Ogilvie et al., 2011). In particular, students were more confident in patient interactions and psychomotor skills (Bambini et al., 2009). Conversely, in the study by Lasater (2007), most students expressed "feeling like an idiot" during the actual HFS experience (p. 273). That suggests negative feelings toward their role as nurse during the HFS scenario and a lack of self-confidence. However, once students had an opportunity to reflect on their experience after the simulation, although they did not address confidence specifically, they felt that the overall experience was beneficial to their learning, even though they had negative feelings during the HFS.

Realism. Similar to quantitative findings, although many students in the qualitative studies commented that HFS was realistic (Bremner, Aduddell, Bennett, & VanGeest, 2006; Traynor et al., 2010; Wotton et al., 2010), some thought authenticity was lacking (Erickson-Megel et al., 2012; Lasater, 2007). For instance, students in the study by Traynor et al. (2010) commented that once the HFS scenario began, they forgot they were caring for a manikin and treated it as a real patient. Students in the study by Lasater (2007) gave several reasons for why they thought the HFS lacked realism. These pertained to the manikin in that it lacked (a) a realistic voice; (b) nonverbal cues, such as smiles or grimaces; (c) important physical signs, such as swelling or color change; and (d) the capability for such physical assessments as neurological examination.

Communication. Students have commented on two areas of communication impacted by HFS: communication with team members during the HFS exercise and general professional communication skills. There were two studies in which students reported having negative experiences in communicating during their HFS (Davies et al.,

2012; Garrett et al., 2010). More specifically, students reported that they had difficulty communicating with the other students and felt awkward communicating in a group of four (Garrett et al., 2010) and had difficulty communicating with parents when discussing a child's health status (Davies et al., 2012). While students in the study by Davies and colleagues (2012) had trouble communicating during the scenario, once the HFS was over and they reflected on the experience, they could see how the experience enabled them to learn how to communicate better in similar situations in the future. That students think HFS enhances communication skills was also found by others. After experiencing HFS, students reported that they were better able to communicate with other health professionals (Darcy-Mahoney, Hancock, Iorianni-Cimbak, & Curley, 2013) and nurses (Guhde, 2011), patients, and families (Bambini et al., 2009; Guhde, 2011).

Teamwork. In several studies, students commented that HFS enabled them to learn the importance of teamwork in patient care (Bearnson & Wiker, 2005; Guhde, 2011; Lasater, 2007; Wotton et al., 2010). Students realized that to deliver effective care to patients it is necessary to work as a team (Traynor et al., 2010). On the other hand, some students in other studies indicated that they did not enjoy the dynamics of teamwork during their simulation experience (Bremner et al., 2006; Garrett et al., 2010). While students in those two studies did not specifically describe what they disliked about the teamwork aspect, they stated they would have preferred to work alone as opposed to working as a part of a team in the HFS.

Phenomenological research. Within the qualitative research on nursing students and HFS there were three phenomenological studies in which the lived experience of

simulation was examined. The findings from these studies are presented separately and in detail as they have high relevance for this phenomenological study.

Lived experience of a graded evaluation for skill development. Cordeau (2010) asked the following question: "What are the essential themes of the lived experience of novice nursing students as they live through their first graded individual encounter with clinical simulation?" (p. 9). Third year baccalaureate nursing students, who took part in a graded, videotaped HFS experience and debriefing session, were asked to reflect on HFS learning and to submit a written description of their reflection on their experiences. The HFS involved basic medication administration and therapeutic communication. The researcher used van Manen's approach to examine the written reflective descriptions submitted by 19 students.

The researcher uncovered five thematic clusters from the students' experience: perceived anxiety, seeking and imagining, performing in the moment, critiquing the performance, and preparing for nursing practice. The students experienced varying levels of anxiety throughout the experience and reasons for the anxiety were (a) not knowing what to expect in the simulation, (b) not understanding the clinical situation, (c) being observed and graded by the instructor, (d) being videotaped, (e) fear of failing the course, and (f) not knowing what to expect with instructor feedback during debriefing. Seeking and imagining is about preparing for the simulation, which helped the students envision the simulator as an actual patient. Performing in the moment is about interacting with the simulator to provide nursing care. The realistic environment and manikin facilitated their interventions. Critiquing the performance is about debriefing after the experience. The

students thought that the debriefing promoted their learning as they were able to observe and critique their own performance from watching the video playback of the simulation and they also received faculty feedback. As a result, the students could see where they succeeded or struggled in the HFS. Preparing for clinical practice is about the students' feeling that they learned a lot from the HFS and that it prepared them for future nursing practice in the real world. Overall, the study provides valuable insight into the lived experience of third year nursing students in a graded simulation of therapeutic communication and medication administration.

Lived experience of a maternal-child simulation. Partin, Payne, and Slemmons (2011) asked second year nursing students in an associate of science in nursing program to talk about their experiences with an ungraded HFS carried out in conjunction with a maternal-child course. The primary question the researchers asked was "Whether the integration of experiential learning and acute observation, in a simulated clinical learning experience, enhances students' satisfaction with conceptual learning?" (p. 186). The simulation started as an uncomplicated pregnancy and birth and progressed to more complex situations incorporating postpartum hemorrhage and a breech birth. At the end of the HFS, students were asked to individually audiotape their reflections on the experience. Student responses (n=49) were transcribed and the data were analyzed using Colaizzi's approach.

Students in the Partin et al. (2011) study enjoyed their learning experience with HFS. Three main themes were identified from their experience: nonthreatening environment, enhancement of learning, and feeling prepared for practice. The non-

threatening environment of the simulation enhanced the students' learning by increasing their confidence, reducing their anxiety, and promoting critical thinking. The students felt that the HFS experience better prepared them for clinical practice and caring for real patients. As well, they appreciated the interactive hands-on aspects of the manikin and thought it helped them get a sense of what it would be like to provide care to an actual maternal-child patient in the future. Overall, the study provides valuable information on associate nursing students' lived experience of an ungraded HFS involving maternal-child care.

Lived experience of a pediatric simulation. In investigating the lived experience of pediatric clinical HFS, DiFederico-Amicone Yates (2013) posed the following question: "What is the lived experience of associate degree nursing students who have completed a pediatric simulation?" (p. 4). The investigator used van Manen's hermeneutic phenomenological method to guide the research. The purposive sample consisted of 10 second year associate degree nursing students. Each participant completed two semi-structured, face-to-face interviews with open-ended questions.

The essential themes of the experience were competence, collaboration, confidence, and comfortable. The HFS made the students think critically, which improved their performance and competence. As a result of the HFS, they felt more competent to perform in the clinical setting, like real nurses. After taking part in the HFS, the students indicated that they had gained knowledge on working and collaborating as a team in patient care. The students had to play different roles in the HFS and the experience helped them understand the roles of the registered nurse, licensed practical

nurse, physician, and family member. The pediatric HFS allowed the students to practice their skills in an unrushed manner where they could take time to think and figure out the best plan of care for the patient. As a result, it facilitated their gaining confidence. The HFS was a safe and comfortable environment, which allowed the students to reflect and use previously learned knowledge to deepen their understanding of the patient situation. Overall, the study provides valuable insight into the lived experience of pediatric HFS for associate degree nursing students. However, information about the actual type of pediatric patient care situation and whether the simulation was a graded exercise was not provided in the study.

Conclusion

Over time simulation has evolved into a highly technical and complex method used in health care education. HFS was first introduced to nursing education around the turn of the 21st century and has become much more prevalent in the last 10 years. Coinciding with the increased use of HFS has been a corresponding rise in research in this area. The vast majority of research studies have been quantitative in design. However, there also are a number of qualitative studies. Overall, findings from the various studies indicate that students were satisfied with HFS learning. Although in many studies there is support for HFS as enhancing student critical thinking, learning, confidence, communication, and teamwork, in some studies opposing results were found. That is, HFS did not improve (a) critical thinking any more than lectures, case studies, or group work; (b) student learning when compared to LFS using static manikins, case studies, or traditional hands-on clinical experiences; (c) confidence any more than LFS

using static manikins; (d) communication with other students or family during simulated experiences; and (e) teamwork in patient care. In fact, in some studies, when HFS was compared to other learning methods, namely LFS and traditional methods of learning, such as lectures, case studies, group discussions, and hands-on clinical, there were no statistical differences in student outcomes between HFS and the other learning methods. The inconsistency in findings and methodological limitations within studies make it difficult to draw conclusions about the usefulness of simulation as a pedagogy for nursing education.

Furthermore, little is known about the effect of simulated learning on the learner. Although a number of qualitative studies have been carried out, most have been limited to student perceptions of HFS. Only three studies were found in which the experience of HFS was examined in-depth. These studies are specific to a narrow range of clinical situations for nursing students. In the Cordeau (2010) study, the simulation was about therapeutic communication and medication administration for adult patients and the baccalaureate nursing students' performance was graded. The Partin et al. (2011) study centered on maternal-child health care situations and the associate degree nursing students were not graded on their performance. The study by DiFederico-Amicone Yates (2013) was also limited to associate degree nursing students and despite the fact that the study focused on pediatric HFS, specific information regarding the type of pediatric patient care situation and whether the simulation it was graded was not provided in the study. Hence, more research is required to understand the lived experience of HFS in varied contexts. It is recognized that context influences experience. Therefore, this study

was designed to understand the unknown lived experience of undergraduate baccalaureate nursing students in an ungraded pediatric emergency care situation.

Chapter 3: Methodology and Methods

The purpose of this chapter is to explain and describe the methodology and methods used to answer the research question I posed for this study. In this chapter, an overview of hermeneutic phenomenological methodology, which underpinned this study, is presented first. Then, the participants and setting, recruitment of participants, high-fidelity pediatric clinical simulation exercise, and research activities (i.e., data collection and analysis) are described. Study rigor and research ethics also are addressed.

Hermeneutic Phenomenology

Phenomenology is the study of human experiences as they are lived, as opposed to how we conceptualize them (Husserl, 1967). While descriptive phenomenology is used to describe lived experiences, hermeneutic phenomenology helps us to make interpretive sense or meaning of lived experiences (Lopez & Willis, 2004; van Manen, 1998). A hermeneutic phenomenological researcher seeks to understand the meanings of experiences, which are usually concealed or veiled, as they occur naturally in everyday life. Since hermeneutic phenomenology helps the researcher to uncover hidden experiential meaning to enhance understanding of what a particular experience is like from the perspective of people who experienced it (van Manen, 1998), it was an appropriate methodology to use to understand the lived experience of HFS, in the context of a pediatric clinical simulation, for undergraduate baccalaureate nursing students.

The specific hermeneutic phenomenological approach used in this study was that of van Manen (1998). He described hermeneutic phenomenology as a human science that involves studying the structures of meaning of our “lifeworld” or the world of human

lived experience (p. 53). Hermeneutic phenomenological researchers draw on ". . . other people's experiences and their reflections on their experiences in order to better be able to come to an understanding of the deeper meaning or significance of an aspect of human experience . . ." (p. 62). The aim in hermeneutic phenomenology is to produce a textual expression of the essence of the lived experience that has a powerful re-living effect and provides deep insights into what the experience is like.

van Manen's (1998) hermeneutic phenomenological approach involves a complex interaction of six key research activities: (a) turning to the nature of lived experience, (b) investigating experience as we live it, (c) reflecting on essential themes, (d) writing and rewriting, (e) maintaining a strong and oriented relation, and (f) balancing the research context by considering parts and whole. During the research, these activities are not completed in a linear fashion, but instead they are a part of a dynamic and iterative process.

Participants and Setting

This study took place in a school of nursing in a Canadian province. Data were collected in 2012. As a requirement of their nursing program, third year undergraduate baccalaureate nursing students participated in a clinical simulation exercise. Specifically, the simulation was part of a pediatric clinical course and involved a simulated pediatric patient. The sample for this study was drawn from the students who had participated in that pediatric simulation. A non-probability, purposive sample of 12 students was utilized. Morse (1994) suggested that for phenomenological research, a sample size of 6 to 10 participants generally is sufficient to investigate an experience in-depth and to

determine the essence of the experience. Recruitment of participants for this study ended once there was a "good Gestalt" in the findings (Kvale, 1983, p. 186). This means that I had collected sufficient rich data to gather a good understanding of the lived experience of pediatric clinical simulation. Since I was interested in undergraduate baccalaureate nursing students who experienced pediatric clinical simulation, selecting participants using a purposive sampling method was appropriate. These participants had first-hand knowledge about what the experience is like. This sampling method is consistent with phenomenological research (Streubert Speziale & Rinaldi Carpenter, 2007).

As this study involved interviews with the participants, each participant was given the opportunity to choose the location of his or her interviews. All participants elected to have their interviews held at the school of nursing at which the study took place. The room in which the interviews occurred was a neutral space that was free of any reference to the topic, such as books or articles on simulation in nursing education. A neutral place can help to maximize access to the participants' thoughts and feelings (Streubert Speziale & Rinaldi Carpenter, 2007). The room was small, comfortable, and private, with no noise or distractions.

Recruitment

As the researcher, I was not directly involved with the recruitment of participants. I met with the two clinical instructors, who were facilitating the clinical simulation, to request their assistance in the recruitment process. I explained the purpose of the study and gave them an overview of the responsibilities that I was asking of them in the

recruitment process (see Guide for Discussion with Clinical Instructors, Appendix A). Both instructors willingly agreed to help.

Students were not informed of the study until after their pediatric clinical simulation had occurred. This was to allow the students to remain focused on the simulation experience and to avoid any influence on their experience by virtue of knowing about the study. The clinical instructors provided information to the students regarding the purpose of the study and participation in the study (see Information Guide for Clinical Instructors, Appendix B). Participants were recruited to the study on a volunteer basis. Following the oral description of the study, the clinical instructors gave each student a cover letter explaining what the study was about and the time commitment involved for participants (see Cover Letter Given to Participants, Appendix C), a handout with a brief summary of the study (see Summary of Research Study, Appendix D), and a consent form for initial contact by the researcher (see Consent Form for Initial Contact by Researcher, Appendix E). The students were asked to read the study material and consider whether or not they would be interested in participating in the study. Students who wished to be contacted were asked to provide their contact information and signature on the Consent Form for Initial Contact by Researcher so I could contact them. The students were asked to place their completed or uncompleted consent form in the plain, unmarked envelope provided to each of them, seal the envelope, and place it in a sealed drop box. The clinical instructors collected the sealed drop box and I retrieved the sealed drop box from them. I then contacted the consenting potential participants via telephone

and provided them with detailed information about the study. All those contacted expressed a desire to participate in the study. Hence, individual interviews were arranged.

The High-Fidelity Pediatric Clinical Simulation Exercise

The HFS exercise involved nursing students providing nursing care for a simulated child in an emergency situation.

The HFS Scenario

The five-year-old simulated patient experienced an anaphylactic reaction to a vaccine and declined rapidly into cardiopulmonary arrest. The concepts in the scenario built on the knowledge students had gained through their pediatric theory and laboratory courses. During the simulation, they were expected to provide appropriate care to the patient, which in this case involved engaging in therapeutic communication, carrying out complete assessments, monitoring the simulated patient's condition, administering medications, performing cardiopulmonary resuscitation (CPR), and managing a cardiopulmonary arrest situation. Throughout this paper the simulated patient's cardiopulmonary arrest situation may also be referred to as the cardiopulmonary code. Faculty at the school of nursing with expertise in pediatric nursing developed the clinical simulation scenario.

The HFS Exercise Process

The pediatric clinical simulation took place at the school of nursing HFS laboratory. The laboratory has several Gaumard high-fidelity manikins, for example Noelle®, Newborn Hal®, five-year-old Hal®, and one-year-old Hal®. The manikins are dressed in age appropriate clothing (e.g., pajamas or shorts and t-shirts) and have age

appropriate effects (e.g., toys and blankets), which add realism to simulation exercises. The simulation laboratory also is equipped with audio and visual capabilities that allow for the recording of scenarios for teaching and learning purposes.

It is important to note that at the time of the study the HFS equipment at the school of nursing was relatively new and simulation had not been a requirement of any course in the nursing program prior to the third year pediatric clinical course. However, some of the students who participated in this study had prior experience with HFS as part of a women's health clinical course in the second year of the program. As HFS was not a requirement of that course and exposure was at the discretion of the clinical instructor for the course, other students in this study had no prior involvement with simulation exercises. The students who participated in HFS through the women's health clinical course had the opportunity to observe a labour and delivery of the HFS manikin Noelle® and newborn Hal®. The previous simulation experience was limited to monitoring fetal heart rate, palpating fetal positioning, and observing the stages of labour.

The simulation exercise was developed to augment the students' acute care pediatric clinical experience and was not graded. The exercise was facilitated by clinical instructors and was carried out with groups of students who had been pre-assigned to the groups for their clinical practice. The simulation exercise consisted of four parts: student preparation prior to the simulation, an introduction at the beginning of the simulation exercise, implementation of simulation scenario, and a debriefing experience at the end of the exercise. The introduction, implementation, and debriefing lasted an average of 3 to 4 hours per group of students.

Facilitation of the exercise. There were two clinical instructors involved in the simulation exercise. One was directly involved throughout each part of the exercise. That instructor was the course leader of the pediatric clinical course and during the orientation to the course she provided the students with all of the information required for their preparation for the exercise. She also led the introduction, implementation, and debriefing components. She provided guidance to the students during the exercise and encouraged them to use critical thinking and clinical reasoning and judgment. The second clinical instructor was responsible for the technical management of the scenario, including being the voice of the manikin from the control room and changing the computerized physiological parameters of the manikin. That instructor did not interact with the students during the simulation exercise and had not taught any of the students up to that point in the program. Those same two nursing instructors, who were proficient in using the HFS manikins and the associated computer and communication equipment, implemented the simulation scenario with all the groups of students. Those instructors had several professional development sessions regarding the HFS manikins and were involved with the development of the simulation scenario.

The student groups. There were seven clinical groups in the pediatric clinical course and each group completed simulation at different points during the university term. For the simulation, students in each clinical group were divided into two smaller groups of three or four students each. While one small group and the clinical instructor were completing the introduction and the simulated patient scenario, the other group was assigned independent clinical work unrelated to the simulation. The groups then switched

and after both groups completed the simulation scenario they were combined again as a large group for debriefing. The introduction and implementation of the simulation were video recorded and the recordings were shown to the students in the debriefing. Each group of students participated in the same pediatric clinical simulation exercise using five-year-old Hal®. The 12 students who participated in this study took part in the exercise between January and March 2012. Due to the way the clinical course was scheduled, six of the students in this study participated in the simulation exercise before and six participated after their actual inpatient pediatric acute care practice experience.

Exercise preparation, introduction, implementation and debriefing. Prior to the simulation exercise, students were provided with background information and material to assist them in preparing for the exercise. This included information on the simulated patient's past medical history and reason for visiting the hospital and that he would have an anaphylactic reaction and subsequent cardiopulmonary arrest. The students were also given a list of preparatory readings, information on the types of psychomotor skills that would be required during the exercise, learning objectives for the exercise, and questions to facilitate preparation for the exercise. In addition, the students were notified about the structure of HFS day and they were told to arrive in uniform and to have their stethoscopes. The students' preparatory readings centered on the health assessment of a child, anaphylactic reactions, and cardiopulmonary code management. From the information on psychomotor skills and learning objectives, the students were informed to be prepared to perform body system assessments, medication administration, oxygen administration, suctioning, oral intubation, CPR, and cardiopulmonary code

procedures. The questions to facilitate preparation for the exercise also focused on the health assessment of a child, anaphylactic reactions, and cardiopulmonary code management. Some examples of the preparatory questions were: “What are the clinical manifestations of anaphylaxis?” and “What assessments will a nurse carry out on patient who is exhibiting anaphylaxis?” As well, students were permitted to bring preparatory notes and books into the simulation exercise. Although the students knew beforehand that the simulated patient would have an anaphylactic reaction and subsequently decline into a cardiopulmonary arrest, they did not know exact details of how the scenario would unfold and they did not know what medications the simulated patient would need.

The simulation began with an introduction led by the nursing instructor and consisted of a review of the simulation laboratory rules, a description of the five-year-old simulated patient and his need for a pneumococcal vaccination, and a discussion about the simulation being videotaped and that it would be shown during debriefing. Students were instructed to approach the simulation and simulated patient and family as they would treat an actual patient on an inpatient unit. They were informed to use the same communication, assessment, and interventional skills that they would use with a real patient.

During the clinical simulation exercise, the students were responsible for working together as a team to provide nursing care to the simulated patient. At the beginning of the simulation, students carried out different nursing activities as assigned by the instructor. For example, one student may have been required to complete medication administration, while another was required to complete a health assessment and so on.

The nursing instructor assigned activities to the students to prompt them to initiate appropriate care. As the situation progressed and the simulated patient's condition worsened, the nursing instructor took more of a background role and allowed the students to take charge. The students decided when to start CPR and led the resuscitation efforts. They decided among the team who would carry out those nursing responsibilities. For example, one student would do chest compressions, one would apply oxygen, one would document the interventions, and one would administer medications. Therefore, each student in the simulation scenario assumed responsibility for a different aspect of patient care. Once the students completed the resuscitation effort, the simulation ended and the debriefing began.

During the debriefing, the students watched the video of their simulation experience to see how they and their peers performed and interacted in the scenario. They were encouraged to use Gibb's cycle of reflection to reflect on their experiences (Gibbs, 1988). The nursing instructor provided constructive feedback and posed questions to the students to prompt their critical thinking. Students were asked such questions as "How could the nursing interventions have been improved?" and "How is the communication effective or not effective?" The students were able to examine their performance in the simulation and the performance of their peers. It was an opportunity for students to learn from the situation in order to enhance their nursing practice.

Research Activities

Data collection and analysis occurred simultaneously and were guided by van Manen's (1998) six research activities: turning to the nature of lived experience,

investigating experience as we live it, reflecting on essential themes, writing and rewriting, maintaining a strong and oriented relation, and balancing the research context by considering parts and the whole.

Turning to the Nature of Lived Experience

The first research activity involves turning to the nature of a lived experience that interests us (van Manen, 1998). This activity entails a commitment to deep questioning and thoughtfulness about an abiding concern. Clinical simulation is of interest and concern to me as a nursing instructor because I incorporated clinical simulation into my teaching without understanding students' perspectives and experiences with this teaching method.

This first research activity is also about orientating to the phenomenon (i.e., high-fidelity pediatric clinical simulation), formulating a phenomenological question (i.e., What is the lived experience of high-fidelity pediatric clinical simulation for undergraduate baccalaureate nursing students?), and explicating one's assumptions and pre-understandings about the phenomenon. According to van Manen (1998), in order to clearly see the phenomenon under study, the researcher must endeavour to reduce or bracket his or her assumptions and pre-understandings by reflecting on them and attempting to hold them at bay. While acknowledging that complete reduction is not possible, van Manen (1998) argued that the process of reduction must be carried out in an effort to prevent the imposition of the researcher's assumptions and pre-understandings on the research procedures and interpretation of the phenomenon under study. Prior to data collection, I reflected on my personal beliefs, understandings, and assumptions about

the experience of clinical simulation and recorded my reflection in a journal. I referred to my reflection as I collected and analyzed the data. This process of reflection helped me to understand and suspend my beliefs, pre-understandings, and assumptions as I gathered, listened to, examined, and interpreted the data.

Investigating Experience as We Live It

The second research activity is to investigate experiences as they are lived, rather than as they are conceptualized (van Manen, 1998). This step involves the researcher exploring the lived experience in all its aspects and its fullness. I completed this activity by examining key words, consulting with phenomenological literature, and interviewing nursing students.

With respect to the etymological roots of the word *simulation*, I discovered that the word meant "a false show, false profession" in the 14th century and it originated from the Old French word *simulation* and Latin word *simulationem* meaning "an imitating, feigning" (Harper, 2013). From 1954 onward, simulation meant "a model or mock-up for purposes of experiment or training" (Harper, 2013). I also defined words that I thought represented the students' lived experience of HFS. Examining key words helped me grasp the meaning of the clinical simulation experience.

I consulted existing phenomenological literature (i.e., Cordeau, 2010; DiFederico-Amicone Yates, 2013; Partin et al., 2011) after I had identified themes in the participant's experiential narratives. This was to determine if other dimensions of meaning had been revealed in other works and to compare what I had found with what had been found in other phenomenological research on the phenomenon.

Interviews with the nursing students allowed me to enter their lifeworld and gather in-depth information about their lived experience of HFS to develop a rich understanding of the phenomenon (van Manen, 1998). I conducted two face-to-face interviews with each participant: an initial interview and a follow-up interview. All interviews were digitally audio-recorded and later transcribed verbatim by a transcriptionist to form the text for data analysis. Prior to data analysis, I checked for accuracy each of the transcribed interviews against the corresponding digital audio recording.

Through in-depth initial interviews, I actively pursued the significance and meaning of the students' clinical simulation experience. An unstructured, interactive interview format was used to elicit information from the participants. I asked broad, opened-ended questions to give each participant freedom to express his or her perspective and probes were used to garner further detail when it was necessary (see Interview Guide, Appendix F). I used reflective listening and carefully observed the participant during this process. By doing so I was able to give the participants all of my attention and I was able to stay attuned to their story and ask further questions or clarifications as necessary. Demographic data were collected at the beginning of the initial interview (see Interview Guide, Appendix F). The information gathered consisted of age, sex, number of years of post-secondary education, and previous university degree or diploma status. That information was garnered to describe the sample. The initial interviews lasted from 30 minutes to 1 hour and 50 minutes.

The purpose of the follow-up interviews was to clarify or expand on points raised in the first interviews and to discuss with the participants the preliminary themes, which I had constructed from analyzing the first interviews. The participants were asked if the preliminary findings accurately captured their experience with HFS and they were given the opportunity to add any additional comments. These interviews lasted between 10 and 45 minutes.

As I was collecting the data through the interviews I also was analyzing it. Essentially, once an interview was completed, I began data analysis on that participant's experience and continued to move between completing interviews and analyzing the data. This allowed me to think about what was in the data and what I still needed to know to grasp a full understanding of the lived experience, thus prompting me to delve deeper, as necessary, in subsequent interviews. Furthermore, simultaneous data collection and analysis permitted me to move back and forth between the shared meaning of experiences among the students as a whole and the foreground of a particular individual experience to understand, build on, and interpret meaning from the experiences (Pascoe, 1996).

Reflecting on Essential Themes

The third research activity involves reflecting on the essential themes that characterize the phenomenon. van Manen (1998) stated that ". . . true reflection on lived experience is a thoughtful, reflective grasping of what it is that renders this or that particular experience its special significance" (p. 32). Through identifying themes, I was able to focus on the meaning and significance of the lived experience of HFS for the

nursing students. There are two main sub-activities of reflecting on essential themes: conducting a thematic analysis and determining incidental and essential themes.

Conducting a thematic analysis. Thematic analysis refers to the ". . . process of recovering the theme or themes that are embodied and dramatized in the evolving meanings and imagery of the work" (van Manen, 1998, p. 78). Themes are the means to getting at a notion, while also giving order and structure to research findings. In this study, analysis began with listening to the digital recording of each participant's description of his or her experience, followed by reading and rereading the transcripts. This allowed me to become familiar with and immersed in the data. Although the analysis process is not rule-bound, but rather a free process to see meaning, it is guided by attention to several specific processes: uncovering thematic aspects, isolating thematic statements, composing linguistic transformations, gleaning thematic descriptions from artistic sources, interpreting through conversation, conducting a collaborative analysis, and using lifeworld existentials as guides to reflection (van Manen, 1998).

Uncovering thematic aspects. According to van Manen (1998), themes have the power to allow researchers to proceed with phenomenological descriptions. Themes are ". . . like knots in the webs of our experiences, around which certain lived experiences are spun and thus lived through as meaningful wholes" (van Manen, 1998, p. 90). I uncovered thematic aspects, or qualities, of the students' experiences by entering into conversation with them. As participants described what the experience was like for them, I was able to unveil aspects of their experience. Through the process of continuing thematic analysis, the thematic aspects evolved into themes.

Isolating thematic statements. Thematic statements can be isolated from any description of a lived experience and there are three approaches that can be used for this process (van Manen, 1998). The first approach is the wholistic or sententious approach. In this approach the researcher looks at the text as a whole and formulates a phrase to capture the meaning of the entire text. The second approach is the selective or highlighting approach. This approach involves the researcher repeatedly listening to or reading the text for statements or phrases that are revealing about the phenomenon and highlighting these revealing statements. The third approach is the detailed or line-by-line approach. In this approach, the researcher must look at every sentence in detail and question what it reveals about the phenomenon of interest. I used the selective approach in this research. While listening to the audio recordings, I read the text several times and highlighted statements or phrases that were revealing about the lived experience of pediatric clinical simulation. I asked myself, "What statement(s) or phrase(s) seem particularly essential or revealing about the phenomenon or experience being described?" (van Manen, 1998, p. 93).

Composing linguistic transformations. Composing linguistic transformations is not a structured process, but rather a creative, hermeneutic process (van Manen, 1998). To facilitate this process I wrote notes about the emerging themes. This enabled me to grasp a deeper understanding of the nature of the lived experience of pediatric clinical simulation. Then, I tried to capture and describe the themes in what van Manen (1998) referred to as phenomenologically sensitive paragraphs.

Gleaning thematic descriptions from artistic sources. While both artists and phenomenological researchers attempt to grasp the essence of lived experiences, the themes are implicit in literary works such as novels and poetry, but they are explicit in phenomenological descriptions (van Manen, 1998). I looked, but could not find artwork, such as poetry, that depicted the experience of clinical simulation.

Interpretation through conversation. The purpose of the conversational relation is to seek out and understand the phenomenon under study (van Manen, 1998). Questions to the participants are kept open and are oriented to making sense of the phenomenon. These conversations provide an opportunity for the participants to reflect on their experiences in order for the researcher to access deeper meanings in their experiences (van Manen, 1998). In this research, the initial interviews were followed up by a second interview in order to allow the participants to further reflect on their experience and to reflect on the preliminary themes I had gathered from the data. I sought feedback from the participants on the preliminary themes by asking questions such as, "Is this what the experience is really like?" (van Manen, 1998, p. 99). The themes were further refined based on the second interviews.

Collaborative analysis. Collaborative analysis is the process of sharing the tentative themes and description of the phenomenon with others, such as members of a research team, in order to generate greater insights and meanings (van Manen, 1998). Themes are discarded, added, or modified in this process. For this research, I had extensive collaborative discussions concerning the data and data analysis with my co-supervisors to achieve additional insight and understanding of the data and to formulate

the themes. This process enabled me to gain a deeper understanding of the lived experience of pediatric clinical simulation.

Lifeworld existentials as guides to reflection. Four fundamental themes are likely present in the lifeworlds of all human beings. These fundamental lifeworld themes are referred to as 'existentials' and they are helpful guides for reflection during data collection and analysis. The four existentials are lived space (spatiality), lived body (corporeality), lived time (temporality), and lived human relation or other (relationality or communality) (van Manen, 1998).

Lived space is "felt space," such as the way a person feels exposed in a vast open area (van Manen, 1998, p. 102). I reflected on the participants' experiences in the lived space of the clinical simulation. I asked each participant a question such as, "How did being in the clinical simulation scenario and laboratory affect the way you felt?" Lived body refers to the fact that people are bodily or embodied in the world and that their physical or bodily presence is both revealing and concealing (van Manen, 1998). I reflected on the participants' descriptions of their bodily presence during the scenarios. I asked each participant a question such as, "How did you feel when you were being observed by your peers and instructor during the clinical simulation scenario?" In addition, I sought to understand the influence on the participants' feelings and experience of being videotaped during the simulation scenario. Lived time is subjective time, or the personal perception of how time goes by as opposed to clock time (van Manen, 1998). For instance, as pointed out by van Manen (1998), time seems to go quickly when we are having fun, but it seems to go by very slowly when we feel bored. I reflected on the

participants' lived time by seeking out descriptions of their experience of time during the simulation. Lived other is the lived relationship with others in a shared space (van Manen, 1998). I reflected on the relational experiences of the participants with their student peers, instructor, and the simulated patient during the simulation.

Determining incidental and essential themes. Since the aim of phenomenological research is to obtain a rich textual description of the essence of the phenomenon, the researcher needs to determine incidental and essential themes (van Manen, 1998). To achieve this, one uses free imaginative variation to verify that a theme belongs essentially rather than incidentally. An essential theme has "aspects or qualities that make a phenomenon what it is and without which the phenomenon could not be what it is (van Manen, 1998, p. 107). To verify the essential themes in this study, I asked questions for each theme identified: "Is this phenomenon still the same if we imaginatively change or delete this theme from the phenomenon? Does the phenomenon without this theme lose its fundamental meaning?" (van Manen, 1998, p. 107). Since not all themes may be unique to a phenomenon, I scrutinized the themes over and over to determine if they were incidentally related to clinical simulation. If a theme was found to be incidental, I discarded it. This process also helped me determine the essence of clinical simulation. The essence is a unifying theme that reveals the phenomenon (van Manen, 1998).

Writing and Rewriting

The fourth activity involves describing the phenomenon through the art of writing and rewriting, which are essential to creating the phenomenological text. According to

van Manen (1998), this process of writing and rewriting makes ". . . some aspect of our lived world, of our lived experience, reflectively understandable and intelligible" (pp. 125-126). A good phenomenological description "reawakens" one's experience of the phenomenon. The process of writing involves sensitivity to the undertones of the spoken language and the application of language and thoughtfulness to a phenomenon (van Manen, 1998). During the data analysis process, I remained focused on the data and attuned to the spoken words of the participants. I used writing and rewriting to see and show the meaning of the phenomenon. I reflected on the themes and wrote and rewrote them in as complete a description as possible, and the text became increasingly honed and refined. In line with what van Manen (1998) said, "to do justice to the fullness and ambiguity of the experience" of simulation, writing for me turned into "a complex process of rewriting (re-thinking, re-flecting, re-cognizing)" (p. 131).

Maintaining a Strong and Oriented Relation

The fifth research activity involves remaining oriented and committed to the research question. According to van Manen (1998), if the researcher does not remain strong in his or her orientation to the research question, ". . . there will be many temptations to get side-tracked or to wander aimlessly and indulge in wishy-washy speculations . . ." (p. 33). During the research process, I stayed focused on the research question. My thoughts and attention remained on the lived experience as I sought to interpret, to explain, and to deeply understand what it means to experience clinical simulation. I read and reread the data again and again to ensure the themes I identified were accurate representations of what the experience was like for the students. In effect, I

immersed myself in the data, thus making the interpretive text as oriented, strong, rich, and as deep as possible (van Manen, 1998).

Balancing the Research Context by Considering Parts and Whole

The sixth research activity is about balancing the research context by considering the parts of the lived experience and the whole experience (van Manen, 1998). Many times during data analysis I stepped back from the data and writing and I reflected on how each theme contributed to the overall experience and how they fitted together as a whole to reveal the essence of the experience.

Rigor

Rigor in the research process is essential for useful findings. I used the following verification strategies, as proposed by Morse, Barrett, Mayan, Olson, and Spiers (2002), to achieve a rigorous study: methodological coherence, sampling appropriateness, concurrent data collection and analysis, and theoretical thinking.

Methodological coherence refers to congruency between the research question, methodology, and research method (Morse et al., 2002). In this study, the question was about the lived experience of high-fidelity pediatric clinical simulation. Hermeneutic phenomenology is used to understand lived experience and the method employed in this study is consistent with hermeneutic phenomenology.

Sampling appropriateness is about the fit of the participants with the research question and the adequacy of the data. Participants must be those who best represent the research topic (Morse et al., 2002). The participants in this study had first-hand knowledge of and experience with pediatric clinical simulation. I ensured that I had

adequate data by conducting in-depth and complete interviews and by garnering participants into the study until I could fully describe and understand the students' experience.

In this study, data collection and analysis were carried out concurrently. Morse et al. (2002) explained that concurrently collecting and analyzing data is the crux of accomplishing validity and reliability in qualitative research. Simultaneously collecting and analyzing data allowed me to see what was in the data to date and what I still needed to know. In that way, I was able expand on data collection through asking further questions and engaging in further conversation in subsequent interviews. I continued to collect and analyze data until I was satisfied that I had a good understanding of and could fully describe the lived experience of clinical simulation for undergraduate baccalaureate nursing students.

Thinking theoretically refers to reaffirming ideas generated from the data to date in new data as it is gathered (Morse et al., 2002). Throughout the data collection and analysis process, I examined and re-examined the data. This allowed me to affirm my ideas about themes that I thought were in the data with new data as I was collecting it. Also, during data collection and analysis, I endeavoured to bracket my pre-understanding and assumptions about simulation. Furthermore, in order to ensure that the themes I identified were faithful to the data and the lived experience, I sought feedback on my analysis from my co-supervisors and I discussed tentative themes with the participants during the follow-up interviews and sought their feedback as to whether the themes fit their lived experience of simulation.

Ethical Considerations

This research was approved by the university ethics board. Permission to conduct the research also was provided by the school of nursing at which the study was conducted. Ethical considerations that were addressed with respect to this study are free and informed consent, confidentiality, privacy, risks, and benefits.

Free and Informed Consent

Participants have a right to voluntarily participate in research with full information regarding what the research involves. Free and informed consent means that participants are provided with information about the study to enable them to make informed decisions regarding whether to participate or not. In order to ensure free and informed consent in this study, clinical instructors acted as intermediaries. After participation in the clinical simulation scenario, the clinical instructors introduced the study to the students and gave them written information about the study to read and a consent form to complete if interested in being contacted further about the study (see Consent Form for Initial Contact by Researcher, Appendix E). Students were informed by the clinical instructors that participation in the study was voluntary and participation would have no effect on their clinical course or the grading of that course. I addressed any additional questions or concerns regarding the study during my telephone call to those who consented to be contacted.

Before the first interview with each student began, written informed consent was garnered from him or her (see Informed Consent Form, Appendix G). Prior to getting this consent, I provided participants with a description of the study again by reading to them

information provided on the Summary of Research Study form (see Summary of Research Study, Appendix D). I also informed the participants that they were free to withdraw from the study at any time and for any reason. I read out loud and thoroughly reviewed with each participant the information on the Informed Consent Form and I encouraged each student to ask questions. Once participants voiced that they understood the study and they had no further questions, written consent was obtained. Two consent forms were signed and dated by the participant and myself. The participant kept one copy of the consent material and I retained the other. The Informed Consent Form also included permission to digitally audio record the interviews.

It is important to note that I am a faculty member at the school of nursing at which the study occurred. However, I was not involved in the offering of the clinical course in which the simulation exercise occurred. Also, I did not teach the students who participated in this study, or their third year classmates, for any of the remainder of their four year program. However, I taught all of the participants in this study a course during their second year in the nursing program, which concluded prior to this research. This had the potential to affect the relationship between the participants and me during the study, as they could have perceived me as an authority over them. Every measure was taken to minimize any perceived power and authority relationship. I notified students, who were interested in participating in the study, that to the best of my knowledge I would not be teaching them in the future and, therefore, I would not be in a position of authority or have an ability to determine their course grades. I also reinforced the fact that

participation in the study was completely voluntary and the decision to participate or not would in no way influence participants' academic achievement.

Confidentiality and Privacy

Throughout the study, I implemented measures to ensure confidentiality of the information obtained from the participants and to protect their privacy. Interviews were held in private with only the participant and me present. Measures were taken to ensure there were no interruptions during any of the interviews. Once an interview was completed, the audio file was removed from the recorder immediately and transferred to a password protected, digital audio file on my office computer at the school of nursing. Identifying personal information was not recorded on any documents used in the research process. I used numeric codes instead of names for all study documents. Along with the Consent Form for Initial Contact by Researcher and the Informed Consent Form, a log of participant names and matching numeric codes are stored in a locked filing cabinet, accessible only to me, in a secure location at my place of work. As well, all paper copies of study data gathered in the research process are kept in a separate locked cabinet, in a secure location at my place of work which only I can access. During the study, all electronic files of interviews were stored as password protected files on my office computer at my place of work. Once the study was completed, the electronic files were removed from my office computer and transferred to an external, encrypted USB drive and stored in a locked cabinet at my place of work, which only I can access.

In order to protect participant confidentiality, the transcriber was required to sign an oath of confidentiality prior to access to any data for transcription. The transcriber

only had access to the data while she was transcribing. Some of the digitally recorded interviews had participants' names in the recordings. Thus, during the transcription process all names were removed from the transcriptions. Care will be taken to ensure that no identifying information is revealed in any reports or presentations of study findings. Participant quotations used in any reports or presentations will be anonymous. As well, fictitious pseudonym initials are being used to identify participant quotations.

Consent forms and all paper and electronic copies of study data, and the digital audio files will be kept for 5 years following publication of the findings. After that time, the paper copies will be shredded and disposed of through secure disposal at my place of work and electronic copies of the data will be deleted.

Risks and Benefits

Participants were informed that no direct benefits were anticipated from participation in the study, but the findings might provide others with a better understanding of students' experiences with clinical simulation. The clinical simulation exercise was a requirement of the students' learning in their nursing program. Thus, being in this study did not pose risks beyond what the students might have been exposed to by virtue of their course requirements. Participants were informed that they could decline to answer any question they preferred not to answer. No participants indicated any discomfort during the interviews.

Conclusion

This study was carried out to understand the lived experience of high-fidelity pediatric clinical simulation for undergraduate baccalaureate nursing students. The study

was conducted using the hermeneutic phenomenology approach of van Manen (1998) and the sample consisted of 12 students, who participated in a simulation exercise as part of a pediatric clinical course. The HFS involved an anaphylactic reaction and cardiopulmonary arrest of a five-year-old child. Data were collected through in-depth interviews, using broad, open-ended questions and probes to pursue the significance and meaning of the students' clinical simulation experience. Data collection and analysis occurred simultaneously and were guided by van Manen's (1998) six research activities: turning to the nature of lived experience, investigating experience as we live it, reflecting on essential themes, writing and rewriting, maintaining a strong and oriented relation, and balancing the research context by considering parts and whole. From the data analysis, themes that represented the students' lived experience were uncovered and the essence of the experience was revealed. Rigor was achieved through the application of the verification strategies identified by Morse et al. (2002). The participants' rights were protected through attention to free and informed consent and protection of confidentiality and privacy.

Chapter 4: Findings

The purpose of this chapter is to present the findings from the study. It consists of a description of the participants and a description of the themes that were derived from the interview data and represented the participants' lived experience of clinical simulation.

Participants

Fifty-two students were provided with information about the study and 38 students expressed interest in being contacted by the researcher. The essence of the experience was revealed at 12 participants and there was a good phenomenological Gestalt in the text; therefore, data collection was concluded with the sample of those 12 participants. Seven participants were female students and five were male students. The participants were Caucasian and the mean age was 25. All were third year baccalaureate nursing students and four participants had post-secondary university degrees prior to beginning the nursing program. The participants are represented in the findings by pseudonym initials.

Themes

In this study, data analysis generated a number of themes. The overarching theme is that the clinical simulation was an *eye-opening experience*. It was eye-opening in that it was a *surprisingly realistic nursing experience* and a *surprisingly valuable learning experience*. It was a surprisingly realistic nursing experience to the students because the manikin seemed like *a real patient* and they were focused on *saving the patient*. The realism of the experience came as a surprise to the students because they did not

anticipate that the experience would be so lifelike. *Perceiving the manikin as a real patient* and *saving the patient* made them *feel like a real nurse*. The clinical simulation provoked a variety of emotions in the students from *feeling nervous* prior to and at the beginning of the simulation to *feeling stress* while trying to save the simulated patient to *feeling relief* when the simulated patient survived the catastrophic event and the simulation was over. The value of the experience was revealed through the students gaining an *increased awareness of the art and science of nursing*, attaining an *increased recognition of the importance of teamwork*, *feeling more prepared for clinical practice*, and *wanting more simulation experiences*. The students had not expected to get much out of the simulation activity and as a result, they were surprised by the impact the experience had on their learning. When considered together, the noted themes provide an in-depth understanding of the students' lived experience of pediatric clinical simulation. The themes and how they fit together to describe the students' experience are illustrated in Figure 1 (see page 57).

Clinical Simulation: An Eye-Opening Experience

The essence of the students' experience was that clinical simulation was "*eye-opening*" (K.I) "*It was eye opening because I didn't realize how much of an impact it would have or how real it would actually end up feeling."* (T.L) An eye-opening experience is an encounter that shows a person or teaches a person something in a surprising manner (Eye-opener, n.d.a). It also can be viewed as something lived through that was startling, surprising, or enlightening (Eye-opener, n.d.b). The clinical simulation

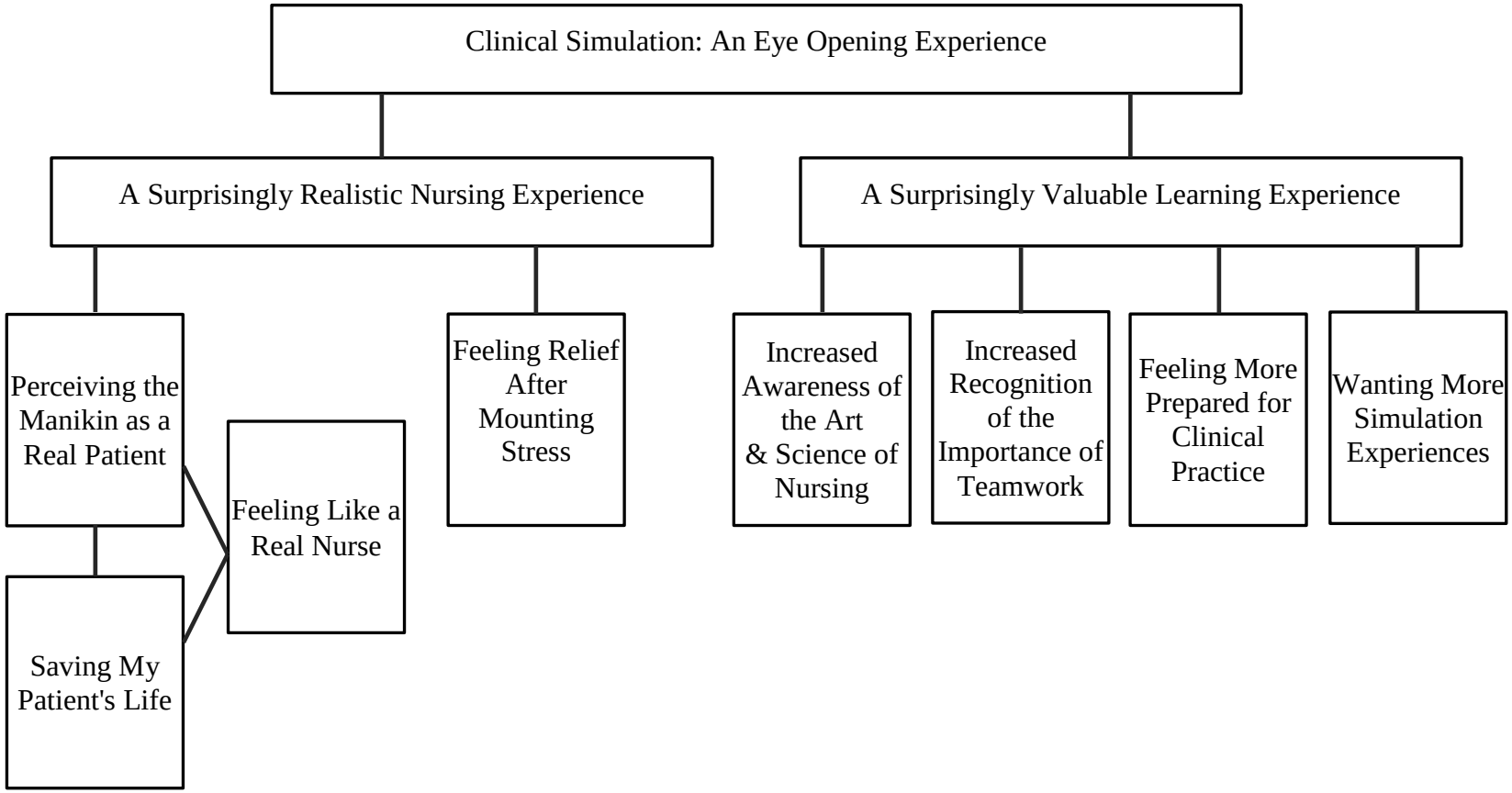

*Figure 1.*Thematic illustration of students' lived experience of pediatric clinical simulation.

was eye-opening for the students in this study in two ways: it was a surprisingly realistic nursing experience and it was a surprisingly valuable learning experience.

A surprisingly realistic nursing experience. Surprising is defined as unexpected (Surprising, n.d.); realistic is defined as resembling real life (Realistic, n.d.). Therefore, an event that is surprisingly realistic is an occurrence that unexpectedly resembles real life. The clinical simulation was a surprisingly realistic nursing experience to the students because they did not expected it to resemble real life so closely. They were surprised by "*the realness of it."* (T.L) They were surprised by the realistic nature of the clinical simulation because they expected the simulation to be similar to their previous experiences with manikins in the laboratory practice setting. Instead of being the lifeless doll they had encountered previously, the manikin in the clinical simulation was a high-fidelity simulator that appeared and responded like a real patient and whose physiological parameters mimicked what would actually happen to a real child in a comparable clinical situation. This resulted in the students *perceiving the manikin as a real patient*. Having to save the simulated patient's life and consequently *feeling like a real nurse* also contributed to the surprisingly realistic nursing experience.

Perceiving the manikin as a real patient. At the beginning of the simulation experience before the simulated patient situation began to unfold, the students viewed the simulated patient as just a manikin because they expected the simulation to be similar to their previous dealings with LFS static manikins in the laboratory setting. However, as the simulation scenario progressed and the students were focused on the events in the scenario, their view changed and an adjustment in thought process occurred resulting in

the manikin becoming more than just a manikin to the students. The manikin became a real child. *"You don't even really think about it being a computer when it is in front of you, you just think this is a five-year-old little boy."* (T.L) Thoughts of the simulator being a manikin disappeared and the "*manikin assumed the role of a child….So it certainly felt like he was real and what he was experiencing was very real."* (A.F)

There were several factors that influenced the students to perceive the manikin as a real patient: physiological responses of the manikin, verbal responses of the manikin, appearance of the manikin, physical setting in which the simulation occurred, and interventions of the nursing instructor who guided the simulation. The manikin had realistic physiological features and responded through realistic changes in such features, namely heart rate, blood pressure, respirations, lung sounds, and skin color. *"You could actually see him breathing….You could see his chest rise when he took that breath."* (M.O) A cardiopulmonary monitor revealed changes in vital signs. *"The manikin could talk, breathe, turn colors, and the vitals were changing…so that was all very real."*(P.A) The physiological parameters conveyed deterioration in the manikin's condition to eventual unresponsiveness, which contributed to the students' perception of the manikin as a real patient.

In addition to the physiologic parameters, the realistic verbal responses of the manikin were essential to the students' perception that the manikin was a real patient. *"The voice was awesome. I think that was something that was really, really good….the fact that the manikin had a voice made it realistic."* (K.I) The voice mimicked a child's voice and the manikin's verbal responses represented how a child would respond and

what a child would say in a real clinical situation, such as indicating his physical and emotional distress. "*The things that he was saying was very real too. He was talking about his mom and saying that he finds it hard breathing or he was crying. So that made it very real."* (P.A) Another student explained, "Y*ou can see it, you are monitoring it, and the client is expressing it all at the same time. So it really makes it very real."* (A.F)

The manikin not only verbally responded like a five-year-old child, but also resembled a real child. The simulator was a pediatric manikin, and its physical size was that of a five-year-old. The manikin was dressed in bright blue shorts and a green shirt with a dinosaur design. As well, he had a stuffed animal with him for his visit to the hospital. *"He had a little stuffed moose and the whole time no matter what, we made sure he had the moose….like we cared about him. Like making sure that his moose was there and we were holding his hand."* (L.D)

The physical setting for the simulation, the simulation laboratory, was arranged to mimic an actual hospital environment. There were a cardiac monitor, hospital bed, bedside table, crash cart, oxygen equipment, and appropriate hospital supplies, such as intravenous supplies, syringes, needles, and medication ampoules and vials. *"The oxygen setup was there, and the med cart was there, and the crash cart was there, so that was all very real."* (P.A) As well, both the students and instructor were wearing their nursing uniforms, which contributed to the realistic appearance of a clinical environment. *"The atmosphere seemed pretty good because you got the correct bed, the patient in the bed, we were in our uniforms….So it was pretty much realistic.*" (N.V)

The nursing instructor treated the manikin as a real five-year-old child and the situation as a real clinical situation, thereby engaging the students in the simulation scenario. She gave instructions, prompted students to make clinical decisions, led the resuscitation efforts, assigned tasks to the students, and treated the simulation as a serious clinical event. She created a sense of urgency to the situation as time was critical to saving the simulated patient. She "*made it real and she also made the urgency clear and you need to get this now."* (C.W) The nursing instructor was *"rushing us a lot….She was doing it so that [the] scenario would seem more realistic….She made it rushed more, maybe put a little bit more pressure on us, but that is what is going to happen in real life."* (D.U)

Taken together, then, the realistic characteristics of the manikin and the setting and the realistic role assumed by the instructor led the students to think of the situation as "*as real as it can possibly get*" (T.L) without an actual patient. As one student commented,

> *You look on the monitor and you have a heart rate, and you have a respiratory rate, and you have a story right. So, it doesn't matter that it is not real flesh and blood. I still took it as this is a child that has gone into cardiac arrest.* (T.L)

Perceiving the manikin as a real patient provoked the students to save the simulated patient's life.

Saving my patient's life. The clinical simulation started as a routine immunization to a five-year-old child. Then, the situation escalated into an emergency where the child experienced an anaphylactic reaction that led to a cardiopulmonary arrest. The students quickly became invested in the clinical situation and they responded as if it was real.

They focused on saving the simulated patient's life, just as they would in a real clinical situation. "*Once the child started going into the code…everything was focused now on saving this child."* (M.O) The simulation scenario generated an intense life-saving situation; therefore, it is not surprising that the students' focus was to save the simulated patient. The simulated patient's declining health status was the motivating factor for the students to "*get it done and save this guy's life."* (N.V); "s*ave the child.*" (M.O) Thus, their desire to save the simulated patient was genuine. The realistic patient and realistic experience of saving the simulated patient made the students feel like real nurses.

Feeling like a real nurse. The students felt like real nurses as a result of their realistic interactions with the manikin and provision of nursing care to save the simulated patient. The students assumed the full role and responsibilities of a nurse and thus, this was the first time that they felt like a real nurse as opposed to a nursing student. Although the clinical instructor was present, she acted as part of the clinical team, directing the resuscitation, rather than as the students' instructor. The students were expected to provide the nursing care independently and without direct supervision, just as a nurse would in clinical practice. A student voiced that the experience "*just made me feel like I was part of a real situation of being a real nurse.*" (P.A) By carrying out the functions of direct caregiver, decision maker, collaborator, and code leader, the students integrated into practice their previously learned knowledge. It *"puts everything that you learned into perspective. It makes it more realistic. You feel like ok, I am a nurse now."* (D.U)

The students independently performed some tasks associated with these functions for the first time. For example, delivering CPR in a realistic situation with a realistic

patient was a new experience for students. This increased independence and accountability for their nursing actions contributed to the feeling that they were real nurses. It was "*the first time that I was able to kind of stand on my own two feet, and kind of perform the skills without being guided every step of the way."* (T.L) Being able to work independently and have increased responsibility in the simulation made the students feel like real nurses. It *"made you feel like a nurse."* (E.J)

The students' feeling that they were practicing like real nurses and not as students was accentuated by the fact that the simulation experience was an ungraded learning experience. The simulation activity was designed by nursing faculty as an opportunity for students to encounter a complex pediatric patient care situation, integrate their knowledge, and practice nursing skills. The clinical simulation activity was completed in a safe environment, where fear of getting a numerical grade or failure on their performance was not a concern for them. The focus on learning as opposed to evaluation enabled the students to feel like it was real life.

> *Like in real life, if I was working as a nurse. That is what it felt like. It felt like I was doing this for my patient, or I was…saving my patient's life…we were [not] getting marked on it or graded on it for school.* (P.A)

The students were free to focus on the nursing experience and feel like real nurses.

Feeling relief after mounting stress. The students experienced several emotions as a result of the clinical simulation activity, which can be described as nervousness, stress, and relief, and are captured by the phrase *feeling relief after mounting stress*. Prior to and at the beginning of the simulation experience the students were nervous. As the clinical situation progressed and the simulated patient's condition escalated into a critical

situation, the students had feelings of stress. Then once the simulated patient was stabilized and the simulation ended, the students felt relief. As noted by one student, the changes in emotions during the unfolding simulated clinical situation can be likened to an *"emotional roller coaster".* (A.F) The simulated patient's illness situation started slowly. This represents the beginning of a roller coaster ride. The simulated patient situation was moving slowly just as a roller coaster does at the beginning of a ride. The simulated patient had received an immunization and started to show signs of an adverse effect (e.g., coughing and developing shortness of breath). At that point the students could see that something was wrong with the simulated patient and they were nervous about the situation and their need to intervene. Then, as the simulated patient's condition worsened, with signs of increasing distress, the nervousness heightened, similar to the anticipation as the roller coaster mounts the incline.

> *Things started to progressively get worse for this particular patient, and we were…nervous, and you started to feel you are going on the incline. The suspense was starting to build as you were going up that roller coaster. Things were starting to get worse and worse and worse.* (A.F)

As the simulated patient's condition escalated into the fast-paced crisis of cardiopulmonary arrest, the nervousness changed to stress, which intensified, similar to the increasing speed of a roller coaster as it plummets on the decline.

> *And then you reached the point when the person stopped breathing…I mean fast and your heart rate went up in your chest. It is like that sick feeling when you start going down a roller coaster, just unnerving. And you felt like oh no, we are done, we are toast. You start thinking the patient is gone and we are in a lot of trouble here. So you get that really sick feeling...trying to get things under control and whatnot.* (A.F)

Once the simulated patient was stabilized, there was relief, similar to the leveling out of a roller coaster as it comes to a stop and the ride is over. *"And then it starts to level out and you start to resolve it."* (A.F) In effect, the simulated patient's condition provoked a progression of emotions from nervousness, to stress, to relief. However, other factors in addition to the simulated patient's condition played a role in the students' nervousness, stress, and relief.

Feeling nervous. The nervousness the students experienced prior to the simulation experience came from being uncertain about what to expect in the learning experience and lacking familiarity with HFS. The nervousness the students experienced at the beginning of the simulation experience came from their encounter with a simulated patient whose condition was worsening and for which they had to intervene, concern about demonstrating competence to the clinical instructor, and concern about being videotaped during the simulation.

Despite prior preparation, the students were uncertain about what to expect in the learning situation. To help prepare them for the simulation experience, the students were notified that simulation would involve an emergency pediatric situation consisting of an anaphylactic reaction and a CPR. These clinical events had been covered in previous nursing theory and clinical laboratory courses and so the students already had exposure to the requisite knowledge and already practiced necessary skills in the laboratory setting. To further prepare them for the simulation, they were required to complete review readings and associated questions on the fundamental aspects of the clinical scenario. They were required to review basic information on immunizations, asthma, anaphylaxis,

and cardiopulmonary code management. However, they were not given explicit detail about how the simulation would unfold. Despite the preparation then, the students were uncertain about what to expect in the learning situation and precisely what would be required of them individually. "*I know I was nervous….You really don't know what to expect, and you can read about it in a million different books but it never prepares you."* (T.L)

Furthermore, HFS was a relatively new learning modality within the nursing program. Some of the students in this study had one previous experience with HFS; for other students this was their first experience. The prior experience that some students had was with an adult female manikin in a labour and delivery simulation and while all the students might have seen the five-year-old child manikin in the simulation laboratory, none had used it or seen it function before the pediatric simulation experience. In talking about not having been exposed to a HFS manikin before, a student expressed her nervousness: *"And the new manikins and stuff, we weren't used to using and dealing with, but yeah….I didn't know what to expect it would be like and yeah I was pretty nervous."* (C.W)

Once the clinical simulation scenario began and the students were introduced to the simulated patient, their nervousness shifted focus as they now were faced with an unfolding potentially serious patient situation that required intervention.

> *I was extremely nervous about it. Because I was anticipating the situation and it seemed like this was going to be the real thing and when I got into the room it seemed, when everything started happening it seemed very real to me. I was going through the feelings.* (A.F)

They were not fully confident in their ability to perform competently in such a situation and that made them nervous.

> *And I guess at first…I felt pretty nervous. Because I know they were going to simulate a code situation that we had to react to. So I was wondering do I know exactly what to do for this?* (N.V)

Furthermore, their nervousness was compounded by having to perform in the presence of their clinical instructor. Even though the learning experience was ungraded and the students were pleased about that, they were concerned about demonstrating a lack of clinical proficiency to their clinical instructor. *"You don't want to look like a fool to your instructor. So, that in itself would create a little bit of nervousness…because you don't want to say the wrong thing, and you don't want to do the wrong thing."* (E.J)

The nervousness caused by their concern about demonstrating performance competence was worsened because the simulation experience was being videotaped. As one student stated, "*I was really nervous about being videotaped."* (S.X) The purpose of the videotaping was for debriefing so that all students could observe their performance and reflect on it as a learning experience. The simulation scenario was videotaped from the beginning of the simulated patient encounter until the resuscitation efforts had saved the patient. Being videotaped exacerbated the students' nervousness because they were worried about potentially performing poorly and then being exposed after the fact to their peers and instructor. Having others view their performance and potentially make judgments was nerve-wracking.

> *In terms of being nervous, there was going to be an instructor watching you perform this. And the most nerve-wracking part of it was being videotaped…because as the simulation was playing out there was the camera there and it was recording me in the act. So it is going to pick up things that I did*

> *wrong….But it was nerve-wracking because everyone would be watching it….I was more nervous about how other people would perceive me in that situation.* (A.F)

As the clinical simulation progressed and the simulated patient's condition deteriorated, the students forgot about the video camera. Their nervousness was replaced by feelings of stress.

Feeling stressed. When the simulated patient's status started to decline, the students became focused on saving him. With the need to save the simulated patient came feelings of high anxiety, which the students described as "*feeling stressed"* (B.Z) or being *"under pressure."* (L.D) There are three reasons for the stress the students experienced: the critical status of the simulated patient, their own level of clinical competence in saving the simulated patient, and the pressure of time.

The simulation the students experienced involved a grave patient situation. The simulated five-year-old boy's condition rapidly deteriorated into an anaphylaxis and a cardiopulmonary arrest requiring resuscitation efforts. This is the first time that the students had such a critically ill patient and this was stressful for them, especially because the simulated patient could die. As one student articulated, *"[The patient] was someone that was struggling to breathe, and if we didn't help [him, he was] going to die on us….So, my stress level started to build."* (A.F)

The stress of having a critically ill patient was compounded by the pressure to competently deal with the clinical situation to save the simulated patient. The prior feeling of nervousness about performing competently under the observation of their instructor gave way to stress about performing competently to save the simulated patient.

Although the students had previously completed the theory and laboratory components on emergency response and cardiopulmonary code management, they had never put all the knowledge and skills together to save a patient on their own. The simulation experience was the first opportunity for students to integrate knowledge and skills in a realistic life-threatening situation of a critically ill patient.

> *We had to help save the patient's life…in a crisis situation and I was very unsure mostly about my capabilities as a nurse. So, it was kind of my first experience really trying to take my skills and apply them to…an abnormal situation or a crisis situation, and…it was quite stressful.* (A.F)

The process of saving the simulated patient was stressful for the students and carrying out nursing skills in that type of situation was very demanding on them. The students wanted to save the simulated patient, but the situation overwhelmed them and interfered with their performance.

> *I wanted to be effective and when I found that I was struggling with things, like do I do that now? Should I? Ok the heart stops, so do I start CPR?....And there was a delay and uncertainty and that made me feel more stressed out.* (A.F)

Even though the scenario involved previously learned knowledge the students were overcome with providing patient care in the critical situation.

> *I had to start the IV. So, when I went over I looked at all of the materials that I was going to need…I was like, oh my God, how do I start an IV?....I was kind of shaking and dropping all of the supplies.* (L.D)

The stress associated with needing to provide life-saving care was amplified by the pressure of time. The seriousness of the situation intensified rapidly and the students struggled with working as fast as they could in a high-pressure situation where time was crucial to saving the simulated patient. A student explained how having to save the simulated patient created a time pressure, which increased feelings of stress. *"It was*

really rushed…just what the simulation was about….I…felt rushed…because this person is dying right, and you want to save the person." (E.J) As the scenario was unfolding, the students were acting as quickly as they could to save the simulated patient, yet their actions were not always fast enough. "*I also shattered the ampule because I was just kind of in a rush, I was like…I got to get it all done…because that set me back more time."* (L.D) Another student commented, "*It…feels like you can't go fast enough because…I feel like I am being really slow, and my hands are really kind of fumbling, and I felt like it was taking me forever."* (T.L) The feelings of stress experienced by the students were replaced with feelings of relief when the simulation scenario ended.

Feeling relief. The students felt relief for several reasons. First, the simulated patient had survived the catastrophic event. Having brought him back from the brink of death was an immense relief. "*We worked ourselves up so much that afterwards it was phew, ok, that is over and he is alive. It was definitely a relief."* (P.A) Second, the intense experience had ended; saving the simulated patient had been difficult and stressful. As one student surmised, not only was it a relief that the simulated patient had survived but "*that I survived!*" (T.L) Third, the students no longer had to perform under the observation of their instructor and what they perceived as the scrutiny of the video camera. It was a relief not to have to demonstrate their competence anymore. Fourth, another important school task was completed. The HFS was a new learning experience for the students and had engendered much uncertainty for them. So, when it was completed the students were relieved. As one student noted, *"Well relieved that the whole situation was done and that was one last thing that I had to do on my list of things*

to do for school." (B.Z) Students could then relax, reflect on the experience, and recognize the learning they had gained. As they reflected, they were surprised to see how valuable a learning experience it actually was.

A surprisingly valuable learning experience. The clinical simulation was a surprisingly valuable learning experience to the students. As noted previously, surprising is defined as unexpected (Surprising, n.d.). Prior to the experience, the students had not expected to learn much from it and treated it like just another learning event. Hence, they were surprised when upon reflection, after the simulation activity was completed, they recognized it was a valuable learning experience. Valuable is defined as having importance or usefulness (Valuable, n.d.). The students saw that the experience was important and useful to them. "*It has been one of the most valuable experiences that we had since we have been here [in the nursing program]."* (T.L) It was not just another task to complete in school. The value of the experience was revealed through the students gaining an *increased awareness of the art and science of nursing*, attaining an *increased recognition of the importance of teamwork*, *feeling more prepared for clinical practice*, and *wanting more simulation experiences*.

Increased awareness of the art and science of nursing. By participating in the clinical simulation, the students developed a better awareness of nursing; more specifically, they had an increased awareness of the art and science of nursing. Crucial to this theme is the premise that the body of knowledge nurses use to know, understand, and practice nursing can be categorized into these two forms (Parker, 2005). The art of nursing "transpires and is expressed in the nurse-client interaction process" (Peplau,

1988, p. 10). Although variously conceptualized and defined in the literature, the art of nursing is generally considered to be about how the nurse practices nursing. Among other competencies, nursing art involves proficient application of effective communication (Peplau, 1988). As with nursing art, there also are various understandings of nursing science, with nursing science being distinguished from the science of nursing. Nursing science then may be defined as the substantive knowledge of the discipline (Barrett, 2002), for example nursing theories and frameworks. The science of nursing may be defined as the systematized knowledge used to understand and treat phenomena that are within the purview of nursing (Peplau, 1988). This extensive knowledge is applied by nurses in everyday practice and includes, but is not limited to, knowledge of anatomy and physiology, biology, pharmacology, pathophysiology, and psychology. Such knowledge is used to carry out nursing care procedures. A student described how the simulation experience increased her awareness of both the art and science of nursing.

> *It just made me more aware overall of what I do and why we are doing the things that we are doing, like….We…had to put to use all of the skills we learned so far. There is communication…then knowing CPR and first aid and…We had to know everything pretty much. Knowing how to read when his respirations started to drop and his sats [oxygen saturation] were dropping and actually understanding it all and putting it all together.* (L.D)

Increased awareness of the art of nursing. The students' heightened awareness of the art of nursing was revealed in their increased recognition of the importance of good effective communication when interacting with patients. This increased awareness transpired after the students had the opportunity to watch the video during the debriefing session and see their own actions and interactions with the manikin. Watching the playback on video enabled them to see how they communicated with the simulated

patient. For some students this visualization made them aware of their strengths in communicating with the simulated patient, whereas for others, it made them aware that their communication with the simulated patient needed improvement. A student who excelled at communicating with the simulated patient during the experience shared how the experience made him more aware of both his verbal and nonverbal interpersonal communication.

> *I was communicating effectively…and trying to calm him down.…reassuring the simulator that I was there to help…My nonverbal cues…in how I positioned myself with the manikin's eye level…holding the hand, you know embracing a five-year-old child who is very scared, and….I could see that it really came back when I was looking at the video, to see how effective I actually was.* (A.F)

Another student commented that her communication with the simulated patient was weak.

> *I know for me at one point I was just standing there next to the patient and not even talking to him….So it helps you know what you could have done, or things you could have said to the patient…that's my weakness in that experience….So I think it really helped me understand the importance of that.* (P.A)

Overall, regardless of the quality of their communication with the simulated patient, the experience made the students aware of just how important communication is in nursing care.

> *Sometimes as students, we are so focused on trying to say the right thing or almost like having a list in front of us, of questions, to be able to communicate with them [patients], that we kind of lose sight of exactly what it is that we are doing and what we are naturally. I mean, we communicate every day! So it was nice because you didn't really have time to think about what am I going to say, it was you just did it.…it was good, it was definitely good for helping with your communication skills and…the importance of how important it is to communicate in a situation like that.* (T.L)

Increased awareness of the science of nursing. The students' increased awareness of the science of nursing was related to integrating theory into practice and using psychomotor competencies in providing complex care. For the students this was the first time they had to deal with such a complex nursing care situation. In the clinical simulation, the students had to draw upon and integrate knowledge from a variety of classroom courses, including anatomy and physiology, pharmacology, and pediatric nursing care.

> *You are given all of this really good base and background, in…anatomy and physiology, and pathophysiology, and pharmacology…but again it is just that, it is a bunch of information. But, being put in a situation like that.…it really kind of puts it in perspective. It all comes together more so than it does when you are just in the classroom.* (T.L)

The students also had to use such routine skills as physical assessment and medication administration and use advanced skills, including oral airway intubation, oxygen administration and suctioning, and CPR. A student commented, *"I recognize the importance of everything that we learned in lab.…The importance of putting it all together. It made me more aware."* (S.X) The simulation experience made them aware of the value of what they had learned in the classroom and laboratory skills setting and the importance of science in providing competent nursing care.

> *[It] pulled on everything that we have learned…it linked everything, all of our courses….but also behind it with my awareness, there was the knowledge of why I was actually doing what I was doing…So evidence based practice coming into play without me really knowing it. So now, I know that. I don't know how but, you start to link it and it kind of comes together.* (A.F)

Increased recognition of the importance of teamwork. In the clinical simulation scenario, the students were required to work as a team to provide complex nursing care to the simulated five-year-old patient. Teamwork may be defined as "a dynamic process

involving two or more healthcare professionals" who share a common goal and exercise a "concerted physical and mental effort in assessing, planning, or evaluating patient care" (Xyrichis & Ream, 2008, p. 239). Teamwork, therefore, requires collaboration and effective communication among team members. Prior to this experience, the students had generally worked individually and under supervision to provide nursing care in clinical practice. Even though teamwork is stressed in nursing education as essential for positive patient outcomes in nursing practice, the simulation experience was the first time the students actually had to work as a team in order to provide effective nursing care.

> *This was the first time that we were actually exposed in this program to actually realize what it was like to work as a team. Although, teamwork was stressed all through the program on so many levels, in everything that we study, that we read, and that we are tested on, but, this real life experience was actually quite eye opening of what exactly it is to work as a team.* (K.I)

In the clinical simulation, the teamwork required that the students communicate among themselves in the assessment and care of the simulated patient; work together to carry out procedures such as oxygen and medication administration and CPR; and collaborate to make shared decisions such as when to call the physician for patient orders and when to start resuscitation efforts. In working together to care for the simulated patient some students thought that their team worked well, with everyone working together to save the simulated patient.

> *It was good to see how everybody just pulled together as a team…and everybody had their task to do. And it was all focused on saving the patient and everything ran smoothly….It got everybody to work together as a team, and teamwork is important as a nurse.* (M.O)

Other students felt that their teams were not as effective as they ought to have been. A student stated, "*There wasn't a lot of interaction between me and my peers. I think that*

was a big problem with us too….We weren't working as a team." (D.U) Regardless of whether their teams worked well or not, the simulation experience enabled the students to recognize the importance of teamwork and the impact of teamwork on patient outcomes.

> *It really kind of hit home for me, the fact that we all play an important role individually but, without that teamwork it would be utter chaos…it could come down to saving someone's life or not because it really is a coordinated effort.* (T.L)

Feeling more prepared for clinical practice. During the simulation, the students had to draw on their prior learning and nursing skills to provide care in the critical event. As a result, after the simulation they felt better prepared for future clinical practice. A student shared, *"Now that I have done the scenario I feel more prepared for clinical."* (L.D) The students were better prepared for clinical practice in two ways: performing technical nursing skills and participating in CPR events.

During the simulation, the students had to perform procedures such as cardiac and respiratory assessment, intravenous insertion, fluid and medication administration, and oxygen therapy. Some of these skills were more familiar to the students than were others. While all the students had learned and practiced the skills in the learning laboratory, the extent to which they had encountered them in practice varied from student to student. Thus, this experiential learning gave them an opportunity to practice the skills in a patient care situation. A student described how this helped her feel more prepared, "*I felt more prepared to face what I could possibly run into on the floor. And it [the simulation] gave me a chance to practice my skills and stuff, so it actually prepared me for the floor."* (C.W)

Since life-saving cardiopulmonary code circumstances are not common clinical situations for nursing students, this learning experience provided students with the opportunity to undergo a realistic resuscitation event. The students were required to assess the changing patient status of the simulated patient, obtain and implement medical orders, make critical decisions on when to start life-saving measures, and provide CPR. This was a valuable learning experience for the students as it helped prepare them for similar future patient care situations. A student voiced, *"Knowing that I had this experience, even though it was a simulation, I feel better prepared for it when I actually get to experience the real deal."* (T.L) Another student articulated the following,

> *I feel like I am a lot better prepared to go on the floor and if my patient was to [code], if any of this was to happen to my patient, I feel like I would be more confident in what I was doing and be better prepared to know what we had to do.* (L.D)

Wanting more simulation experiences. Although students felt stress during the simulation experience, when the event was over and they had an opportunity to reflect on it they thought it was a great learning opportunity and wanted more simulation experiences. As one student said, "*there should be a lot more simulation*" (A.F) in the nursing program. While recognizing that frequent and regular exposure to simulation might not be feasible because of resource requirements, in terms of time demand and faculty commitment, the students saw simulation as an important addition to the nursing program for three reasons: to support and consolidate learning, to augment or replace clinical experiences, and to provide an alternative and motivating way of learning.

The clinical simulation provided students with an opportunity to synthesize and implement what they had learned in theory and clinical laboratory courses. It *"pulled*

everything together" (T.L) and *"everything that we have learned so far came together for this one simulation."* (B.Z) The students recognized this consolidation of knowledge as beneficial and for this reason, they wanted more simulation themselves and thought that there should be more simulation in the nursing program in general. *"If we had more of these…if we had these in first year, second year, and third year, I think we would be more prepared for when we actually got over there [in clinical practice]."* (S.X)

Because it often is difficult to find suitable learning experiences in the clinical setting, especially in the pediatric setting, students thought that clinical simulation could augment or even replace clinical experiences, thus filling clinical gaps.

> *I guess some clinicals are slower than others, the pediatric clinical especially, and you are not always going to get that experience on the floor. So, having the technology to fall back on to give students that experience can really help them.* (M.O)

The students could envision endless opportunities for implementing simulation in their program. *"I can definitely see the same principle of learning being applied in any kind of nurse client relationship whatsoever, acute, chronic, community, any kind of nursing and kind of situation definitely."* (K.I) As an example, a student talked about how a labour and delivery simulation could be used to substitute for or support clinical experiences,

> *I find that depending on how that day was in clinical you might not see all of the things that you were taught in labs…because some people might get into an OBS clinical and never actually get the chance to like see[a birth]…but you could see what that is like through a simulation.* (B.Z)

The high-fidelity learning technology used in the simulation was unlike other pedagogical methods with which the students were familiar. This different way of

learning intrigued them and they found it exciting. Looking back on the experience, they thought it was a fun and motivating way to learn.

> *I think it makes it interactive and it makes it interesting and it makes it fun….when you are offered an option different from reading textbooks, it makes a huge difference….and it is not only interesting, it is also a lot of fun; so, more [simulation], basically one word, more.* (K.I)

Conclusion

In this chapter, I discussed what participants shared about their thoughts and feelings regarding their participation in a HFS experience. In using a hermeneutic phenomenological perspective to explore the lived experience of 12 undergraduate baccalaureate nursing students who participated in a simulated pediatric clinical scenario, I endeavoured to interpret, understand, and describe the students' experience of this phenomenon.

In answering the research question, *What is the lived experience of high-fidelity pediatric clinical simulation for undergraduate baccalaureate nursing students?* I was able to unveil the essence of the students' experience, as *eye-opening*, and the essential themes that describe it, which are: a surprisingly realistic nursing experience, a surprisingly valuable learning experience, perceiving the manikin as a real patient, saving my patient's life, feeling like a real nurse, feeling relief after mounting stress, increased awareness of the art and science of nursing, increased recognition of the importance of teamwork, feeling more prepared for clinical practice, and wanting more simulation experiences.

The students found the experience to be eye-opening in two ways. It was surprisingly realistic and surprisingly valuable. The experience was surprisingly realistic

to the students because the manikin seemed like a real patient they had to save. That made them feel like a real nurse. The students also experienced emotions. They felt nervous prior to and at the beginning of the simulation, stress while trying to save the simulated patient, and relief when the simulated patient survived the critical event and the simulation was over. At that time they were able to reflect on the experience and were surprised by how valuable it was to their learning. They had gained an increased awareness of the art and science of nursing and an increased recognition of the importance of teamwork. They felt more prepared for clinical practice and despite the emotional impact, they wanted more simulation experiences. Overall, the simulation experience was regarded as a positive one.

Chapter 5: Discussion

The purpose of this phenomenological inquiry was to gain a better understanding of how undergraduate baccalaureate nursing students experience pediatric HFS. The research revealed that the clinical simulation was an eye-opening experience in two ways: (a) it was a surprisingly realistic nursing experience; and (b) it was a surprisingly valuable learning experience. In this chapter, I discuss the findings of this study in light of other current research. First, I address the finding that it was a surprisingly realistic nursing experience. Second, I discuss the finding that it was a surprisingly valuable learning experience.

A Surprisingly Realistic Nursing Experience

The students' rich descriptions and stories in this study supported and expanded on the themes from other qualitative explorations in this area of research. Students in other studies also reported that the HFS manikin seemed like a real patient (Bremner et al., 2006; Cordeau, 2010; Traynor et al., 2010; Wotton et al., 2010). During the simulation in the current study, along with perceiving the HFS manikin as a real patient, the nursing students also perceived themselves as real nurses in an actual clinical practice situation. Essentially, as the HFS occurred the students felt they were real nurses taking care of an actual five-year-old child. They were focused on providing nursing care to and caring for the child throughout the scenario and, in effect, the HFS became a completely real nursing experience.

The students' perception that the HFS was like a real nursing experience could be partially attributed to their prior conception of nursing and what it is like to be a nurse.

Research by O'Brien, Mooney, and Glacken (2008) suggested that current media shapes students' perception of nursing. The trend in modern television programs is to portray the heroic nature of nursing and describe patient situations as life and death circumstances (Price & McGillis Hall, 2014). As well, recent films depict nurses as professional, capable, intelligent, independent, and strong individuals (Stanley, 2008). Nurses may not always play a leading role in popular television programs, such as *House*, *Grey's Anatomy*, and *Scrubs*, however, the plots often illustrate health care as fast-paced, highly technical, life-saving situations (Summers & Summers, 2010). These programs often show physician characters performing skills and procedures that nurses actually carry out (Summers & Summers, 2010). Considering that perceptions of nursing can be influenced by these programs (Judd & Sitzman, 2014), perhaps the students deemed nursing to be a heroic, intense, dramatic, and adrenalin-inducing profession where patient care centers on life and death situations and saving people's lives. The simulation may have felt like a real nursing experience because the focus of the HFS scenario was on saving the simulated patient's life, which is aligned with portrayals in popular media.

The fundamental nature of HFS is to resemble real life as closely as possible. Therefore, the fact that HFS was used for the simulation in this study may have contributed to their realistic nursing experience. In research by Bremner et al. (2006), Cordeau (2010), Traynor et al. (2010), and Wotton et al. (2010) the students also forgot they were caring for a HFS manikin and it felt like a real patient. Neither this study nor other phenomenological research in this area examined low-fidelity simulation. In this study, together with the life-saving situation, perhaps the advanced technological manikin

played a large role in the realism of the experience and feeling like a real nurse. In the vast majority of relevant quantitative studies, the researchers determined that HFS heightens the realism of student experiences. Butler et al. (2009), Grady et al. (2008), and Jeffries and Rizzolo (2006) reported that students' experiences with HFS were more realistic than simulation using static manikins.

Another factor that might have affected the students' feelings of realism in this study was the fact that the resuscitation of the child was always successful. As part of the pediatric clinical course, the simulation focused on the care of the pediatric child in an emergent situation. It was designed to be a life-saving CPR and the intention was the simulated patient would always live. Ultimately, the students perceived the resuscitation as a real nursing experience, where the manikin was a real patient and they were real nurses saving the patient. However, it is questionable if the students would have felt this way had their resuscitation efforts failed. Leavy, Vanderhoff, and Ravert (2011) examined nursing students' experiences of patient death in HFS cardiopulmonary code simulations and they found that these simulations felt fake to the students. The comments made by the students about the simulation being unrealistic focused on the manikin dying. For instance, students explained, "In the simulation you knew that a simulator can't really die" and "You knew that the mannequin could come back to life, and that doesn't happen in real-life" (Leavy et al., 2011, p. 9). Such comments signify that the death of the manikin may have influenced the degree of realism (Leavy et al., 2011). As a result, the students in this study may have described their experience in a different manner had their simulated patient died.

The array of emotions the students experienced throughout the simulation also may have contributed to the realistic nursing experience. The students expressed feeling nervous prior to and at the beginning of the situation. This is congruent with other literature on clinical learning experiences, which illustrated that nursing students often have apprehension, nervousness, or anxiety prior to clinical learning (Melincavage, 2011; Moscaritolo, 2009). As well, the participants in Cordeau's (2010) research recounted that they felt nervous and anxious prior to and at the start of their simulation experience. They did not know what to expect in the simulation and the uncertainty was very nerve-wracking for them. Cordeau (2010) used a graded simulation, unlike the current study, and the students' progression in the nursing program depended on their grade in the scenario.

In contrast, in the simulation experiences researched by DiFederico-Amicone Yates (2013) and Partin et al. (2011) the students articulated that their experiences were stress-free, relaxing, and comfortable. It is unknown if DiFederico-Amicone Yates' (2013) simulation was graded or not, but the study by Partin et al. (2011) involved an ungraded simulation exercise. In a review of the literature, Nielsen and Harder (2013) concluded that regardless of the grading status of a simulation experience, learner performance is critiqued, which provokes anxiety. This might help explain why the students in the current study were nervous even though their simulation was ungraded.

The students' preconceived ideas about the scenario may have fed into their nervousness in this research. Since the prerequisite readings and questions concentrated on cardiopulmonary code management and resuscitation, the students knew that the

situation would involve a CPR, yet they did not know specifically what would occur. For that reason, their nervousness may have been partly due to the unknown aspects of the cardiopulmonary situation that they were anticipating. Cooke (1996) explored students' perceptions of difficult or challenging clinical situations and discovered that students experienced nervousness and uncertainty prior to clinical dealing with critically ill patients. Lasater (2007) also found that students who were anticipating critical care in their simulated scenario experienced more anxiety.

As the HFS progressed and the simulated patient's condition escalated into a fast-paced crisis, the students in the current study reported high levels of stress. The students were fixated on saving the simulated patient and this was an extremely stressful event for them. This is a new finding among the phenomenological studies on the experience of HFS for nursing students. The anxiety that surfaced elsewhere mainly revolved around being observed, videotaped, and graded by the instructor (Cordeau, 2010). The critical life-saving situation that the students in this study were presented with was also likely a factor in their level of stress. The literature indicates that high-risk health care situations often induce feelings of stress in nurses, nursing students, and health care providers (Clarke & Ruffin, 1992; Leighton & Dubas, 2009; Maloney, 2012; O'Connor & Jeavons, 2003; Rhead, 1995; Timmins & Kaliszer, 2002). Furthermore, caring for children in life-threatening conditions can create extreme distress (Maloney, 2012; O'Connor & Jeavons, 2003). Other research supports that handling emergencies, such as cardiopulmonary arrests, incites high levels of stress (Leavy et al., 2011; O'Connor & Jeavons, 2003; Timmins & Kaliszer, 2002). This is corroborated by Page and Meerabeau (1996) and

Pups, Weyker, and Rodgers (1997), who elaborated that those involved with CPR, with or without the death of the patient, experience great stress from the demanding physical and emotional aspects of the situation. Therefore, it is not surprising that the students in this study, who experienced the rapid deterioration of a simulated pediatric patient, had strong feelings of stress during the experience.

Once the simulated patient was stabilized and the simulation ended, all of the students expressed relief. Not only were the students relieved that the situation was over, but also they were relieved that the simulated patient survived the potentially fatal event. Given the realism of the event that involved the near death experience of a simulated five-year-old child, the situation was very stressful and emotional for them. Consequently, it makes sense that the students greeted the child's revival with relief. This finding fits with research reports by Drotske and De Villiers (2007) and Pups et al. (1997), who found that nurses express feeling good and happy after a successful resuscitation. In this study, after the child was resuscitated, the students could move past the emotional rollercoaster of the experience and reflect on the learning they had gained.

A Surprisingly Valuable Learning Experience

Upon reflection, the students unequivocally described how the HFS was a valuable learning experience to them. This insight came as quite a surprise to them. The students gained an increased awareness of the art and science of nursing, acquired an increased recognition of the importance of teamwork, felt more prepared for clinical practice, and wanted more simulation experiences. Prior to the experience, the students did not expect to learn much from it, yet after the simulation activity was completed, they

considered it to be a valuable learning experience. The students' little or no experience with HFS and lack of knowledge about how the simulation would transpire may have played a role in their low expectations preceding the simulation. It was viewed as just another non-clinical task that needed to be completed. Their low expectations were exceeded as they realized how lifelike it was. It is known that many nursing students highly value their clinical experiences (Löfmark, Thorkildsen, Råholm, & Natvig, 2012).

The finding that HFS was a valuable learning experience is consistent with other previous research. In particular, students in other studies also described an increased awareness and knowledge of the art of nursing, especially with respect to interpersonal communication skills (Bambini et al., 2009; Darcy-Mahoney et al., 2013; Guhde, 2011), and the science of nursing (Bearnson & Wiker, 2005; Casida & Shpakoff, 2012; Elfrink et al., 2010; Feingold et al., 2004; Grady et al., 2008; Howard et al., 2011; Kirkman, 2013; Lasater, 2007; Lewis & Ciak, 2011; Lindsey & Jenkins, 2013; McCaughey & Traynor, 2010; Ogilvie et al., 2011; Pauly-O'Neill & Prion, 2013; Traynor et al., 2010; Wotton et al., 2010). The students' accounts of increased learning about the art and science of nursing was not unexpected given the consensus of the research in this area.

As found in this study and in DiFederico-Amicone Yates' (2013) research, HFS enabled the students to work together as a team to provide nursing care. The HFS subsequently helped students to recognize the importance of teamwork in patient care and in their future nursing practice. This is supported by the previous research (Bearnson & Wiker, 2005; Guhde, 2011; Lasater, 2007; Traynor et al., 2010; Wotton et al., 2010). With respect to the current study, one might surmise that this finding may be related to

the specific scenario the students faced. Since it was a critical, pediatric, life-saving situation, it required students to work together and, regardless of whether or not the team worked well, the students grasped the importance of teamwork to nursing care. The students may have gleaned the value of teamwork from their involvement with working together to save the simulated child. However, research by Bearnson and Wiker (2005) and Traynor et al. (2010) demonstrated that students came to appreciate the importance of teamwork even in non-life-threatening, critical care simulation scenarios.

Contributing to the valuable learning experience, students in this study also believed that the HFS helped prepare them for clinical practice. This finding generally corresponds with the phenomenological findings obtained by Cordeau (2010), DiFederico-Amicone Yates (2013), and Partin et al. (2011). According to the students in this study, HFS specifically prepared them for nursing practice in two ways: (a) better preparing them for high-acuity patient resuscitation situations; and (b) improving their clinical psychomotor skills. This is in keeping with research results on HFS learning in critical patient care scenarios. In a study by Ackermann (2009), students who had HFS for learning CPR had significantly higher scores for CPR knowledge and skills for both immediate acquisition and 3 month retention than the students without a HFS learning experience. Similarly, findings from the study by Delac, Blazier, Daniel, and N-Wilfong (2013) indicated that CPR retraining using HFS improved the resuscitation skills of nurses. HFS appears to be effective in preparing students and nurses for CPR in clinical situations. Ackermann (2009) and Delac et al. (2013) did not examine how the HFS affected other psychomotor skills.

Besides CPR, the students in this study also felt more prepared to perform other psychomotor skills. It is possible that the realistic HFS provided an experiential-based learning experience that facilitated the development of their psychomotor skills and, as a result, they thought they were better prepared for clinical practice. According to Kolb's (1984) experiential learning theory, learning is defined as "the process whereby knowledge is created through the transformation of experience" (p. 9). In view of Kolb's experiential learning theory, it is plausible that since the students in this study had an opportunity to practice previously learned psychomotor skills during the HFS, they were able to transform their learning by practicing and reflecting on the experience. Hence, the students believed they were better prepared for nursing practice.

Similar to this study, the majority of the literature indicated that nursing students who experienced HFS desired more of it (Casida & Shpakoff, 2012; Darcy-Mahoney et al., 2013; Erickson-Megel et al., 2012; McCaughey & Traynor, 2010; Wotton et al., 2010). All of the students in this study clearly voiced enjoying the simulation and wanting more simulation experiences. Not only did the students want more cardiopulmonary code simulations, but they also wanted more simulation in general. In fact, in this investigation and the studies by Casida and Shpakoff (2012) and Darcy-Mahoney et al. (2013), the students requested the incorporation of simulation into every year of the nursing program.

It is reasonable that the nursing students in this and other studies (Casida & Shpakoff, 2012; Darcy-Mahoney et al., 2013) found HFS valuable and wanted more because it appeals to their generation. With a mean age of 25, the students in this study fit

into the generational category of a ‘millennial’. A millennial is someone born from 1981-2001 (Nicholas, 2008). This generation has been described as technologically savvy and people from this age bracket have never known a time when technology has not been a large part of their lives (Chambers, 2010; Eckleberry-Hunt & Tucciarone, 2011; Friese & Jowette, 2013; Pardue & Morgan, 2008; Walker et al., 2006). They are referred to as ‘digital natives’ because they have been using the Internet, computers, cell phones, and social media since their early childhood (Friese & Jowette, 2013). Thus, it is possible that the students in this study were more inclined to enjoy and learn from this type of environment as the highly technological manikin and monitors in the HFS scenario were preferential to their learning style. Broom (2010), Montenery et al. (2013), and Skiba (2005) proposed that HFS technologies inherently address the way this generation learns. Since this generation is very comfortable with technology, it may help explain why the nursing students considered HFS to be a valuable learning experience and wanted more. In addition, as millennials have lived in a technological world for most of their lives, it is possible that they valued the learning experience because they foresee future nursing practice as being highly technological. This could also be a rationale for their desire for more HFS in their educational preparation. A study conducted by Rognstada, Aasland, and Granuma (2004) showed that nursing students envision and prefer a high technology working environment.

The nursing students in this study may have valued the learning experience because of the immediate feedback they received. During the debriefing session, directly after the HFS, the students watched the scenario playback and they could observe their

performance during the HFS. This period of observation and reflection provided immediate feedback on their own performance during the scenario and they could see areas in which they excelled or struggled. The clinical instructor also provided immediate, constructive feedback during the debriefing period. This may have enhanced the value the students attached to the experience because millennials expect and want immediate feedback (Eckleberry-Hunt & Tucciarone, 2011; Kramer, 2010; Pardue & Morgan, 2008; Skiba, 2005). Moreover, Eckleberry-Hunt and Tucciarone (2011) ascertained that immediate feedback is best if it comes from multiple sources, as was the case in the current research. Montenery et al. (2013) found that simulation allows learners to receive immediate feedback, which enhances knowledge and performance. The students in the current research study concurred with these benefits of simulation. This generation's desire for immediate feedback and the ability to receive it during the HFS may have influenced the students' perception of the experience as being valuable and their desire for more simulation in the curriculum.

Finally, the students in this research may have regarded the simulation as a valuable learning experience regardless of its high-intensity life-saving nature. Other researchers established that HFS learning has been effective and valuable to student learning in relation to less intense nursing situations and skills, such as: post-operative mastectomy patient care situations (Elfrink et al., 2010); pediatric and maternal patient care situations, including bleeding tonsil, asthma exacerbation, and maternal hypotension (Lewis & Ciak, 2011); nasogastric tube insertion and urinary catheter tube insertion (Grady et al., 2008); and respiratory assessments (Kirkman, 2013). Moreover, while

students in this study stated that they enjoyed the emergency aspect, they could see the value in having more simulations based on non-emergency situations. Overall, the students just wanted more simulation regardless of the type of clinical situation.

Conclusion

In this study, the lived experience of pediatric HFS for undergraduate baccalaureate nursing students was examined. The findings revealed that HFS was a positive learning experience that students found eye-opening. The HFS was an eye-opening experience in two ways: (a) it was a surprisingly realistic nursing experience; and (b) it was a surprisingly valuable learning experience. With respect to the latter, the students became more aware of the art and science of nursing, recognized the importance of teamwork, felt more prepared for clinical, and wanted more simulation experiences. These findings are generally supported by previous research.

The students in this study perceived the HFS as a realistic nursing experience. While other researchers found that high-fidelity manikins are realistic, in this study the students emphatically expressed that the whole HFS situation was like a realistic nursing experience, where they felt like real nurses who lived through the ordeal of saving an actual child's life. The students' conviction that the HFS was like a real nursing experience could have been influenced by the students' perception and image of nursing, the utilization of HFS as opposed to lower-fidelity pedagogies, and the successful resuscitation of the simulated patient. Contributing to the realism of the experience, the students also experienced intense feelings of nervousness, stress, and relief during their

HFS experience. Feeling stressed with an ungraded simulation event was a new finding in this area of research.

The findings of this study add to a small body of research on the lived experience of HFS for undergraduate baccalaureate nursing students. In particular, the following three themes identified in this study expanded on existing research in this area: (a) saving my patient's life; (b) feeling like a real nurse; and (c) feeling relief after mounting stress. The new findings from the current study are likely due to the different HFS scenarios used in other phenomenological research. To my knowledge, no previous research centered on simulated critical life-saving events, such as pediatric CPR situations. The implications of the research findings are discussed in the next chapter.

Chapter 6: Nursing Implications, Strengths, Limitations, and Conclusion

The purpose of this chapter is to provide an overview of the implications of the study findings for nursing education, practice, and research. Also, the strengths and limitations of the study are identified.

Nursing Implications

The findings from the current study have a number of implications for nursing education, practice, and research.

Nursing Education

This research contributes to nursing education by offering nursing faculty and students with a better understanding of the meaning and significance of the lived experience of high-fidelity pediatric clinical simulation for undergraduate baccalaureate nursing students. Together with other research studies in this area, information gained in this study can inform the utilization of this teaching and learning modality to attain positive student learning outcomes that may lead to competent nursing care. It was found that after experiencing HFS, the students felt more prepared for clinical practice and critical care resuscitation events. Therefore, the findings indicate that HFS is a promising method of student learning that may help bridge the gap between nursing theory and practice. Although more research is needed, this study provides some support for the continuation of high-fidelity pediatric clinical simulation in nursing education and the expansion of HFS to other student learning areas in order to capitalize on the high regard the students attached to HFS as a realistic and valuable learning experience.

It is also important to remember that HFS may be an attractive learning modality to millennial students, as they tend to enjoy and want technology in their education, but nurse educators must remain grounded and not be wrapped up in the frills and beauty of the technology in HFS. It is imperative not to use HFS just for its technology, but rather to use it to show the true essence of nursing as a caring art and science.

Nursing Practice

Fewer pediatric, hospital admissions and increasing patient acuity have created challenges in preparing nursing students and registered nurses, especially newly registered nurses, to face diverse pediatric patient care situations. The findings of this study suggest that HFS may better prepare future nurses for pediatric patient care and the acquisition of general psychomotor nursing skills. HFS could be explored for use in continued nursing education sessions or refresher courses in order to improve the nursing skills and knowledge of current pediatric, registered nurses. As well, since students in this study voiced that it was a valuable learning experience and they felt better prepared to encounter CPR events and perform psychomotor skills in clinical practice, it is possible that HFS may be beneficial in other nursing practice areas and learning situations for both nursing students and registered nurses. Therefore, the merit of HFS in CPR training and in other comprehensive patient care situations for both students and registered nurses should be explored.

Nursing Research

The findings of this study indicated that HFS was a valuable learning experience that enhanced their knowledge and prepared the students for clinical practice. Although

the findings of this study add to those from the few previous phenomenological studies on HFS in nursing education, the findings only partially fill the gap in existing knowledge on this phenomenon. As well, since nurses and nurse educators use evidence-informed practice to promote standards of care and positive patient outcomes, researching a phenomenon such as the lived experience of pediatric HFS furthers evidence-informed nursing practice. Additional research is needed in order to improve our understanding of undergraduate nursing students' experience with pediatric HFS and to support HFS as a teaching and learning modality that promotes positive outcomes for students. According to van Manen (1998), "a phenomenological description is always *one* interpretation, and no single interpretation of human experience will ever exhaust the possibility of yet another complementary, or even potentially *richer* or *deeper* description" (p. 31). Thus, I hope that the findings of this study spark further phenomenological research on this topic.

Other research on simulation in nursing education is also warranted. The findings from this study led me to question if similar findings would have been found had a different level of fidelity been used in the students' learning experience. Comparable research with LFS is necessary in order to determine if the findings in this study are unique to HFS. Furthermore, to date, the quantitative and qualitative research on HFS have generated mixed results in regards to the benefits of HFS for student learning. Therefore, further research must be completed in order to comprehend the value and impact of HFS on student learning, particularly in regards to critical thinking, confidence, communication, and teamwork.

Strengths and Limitations of the Study

This study had several strengths. The purpose of this study was to explore the lived experience of pediatric HFS for undergraduate baccalaureate nursing students in order to gain a better understanding of this phenomenon. This study provided valuable insights into the students' lived experience and expanded on the small body of knowledge in this area of research. As I aimed to grasp the meaning of the experience, the use of a hermeneutic phenomenological approach was a strength of this study. Phenomenology offers researchers an approach that fits well with nursing philosophy and it is useful in understanding individuals and experiences (Lopez & Willis, 2004). In fact, hermeneutic phenomenological research "encourages a certain attentive awareness to the details and seemingly trivial dimensions of our everyday educational lives" (van Manen, 1998, p. 8). Another strength of the study was more than one interview was held with each participant. By conducting two interviews with each student, I ensured the accuracy of and expanded on the students' experiences in order to gain a greater understanding. Finally, the circumstances of the HFS were a further strength of the study. The students in this study experienced a pediatric HFS that involved a dire critical care scenario. While in other studies phenomenology was used to research the lived experience of HFS, no other researchers investigated the experience in critical care circumstances.

Along with several strengths, this study also had some limitations. The first limitation was I recruited a sample of 12 third year nursing students from one university, who experienced one HFS in one clinical course. While the sample size was small, phenomenological research typically requires a sample size of approximately 10

participants to obtain rich, in-depth data and to determine the essence of the experience (Morse, 1994). Another limitation was this research focused on one HFS experience in a pediatric critical care scenario. This is the first phenomenological study under these circumstances and further qualitative exploration is needed in order to deepen our understanding of this unique phenomenon. In addition, if the students in this research took part in the HFS scenario more than once, perhaps their experiences would have been different. Finally, the fact that I am a nurse instructor at the school of nursing where the study took place might have influenced the responses of the students. I clearly explained my role as a researcher and I informed the participants that their participation would have no influence on their academic achievement. However, it cannot be ruled out that being a nursing instructor may have impacted the students' narratives in this study.

Conclusion

In conclusion, 12 students voluntarily participated in this hermeneutic phenomenological study. The findings revealed that the lived experience of high-fidelity pediatric clinical simulation for undergraduate baccalaureate nursing students was *eye-opening*. It was eye-opening in two ways: (a) it was a *surprisingly realistic nursing experience*; and (b) it was a *surprisingly valuable learning experience*. It was *a surprisingly realistic nursing experience* as reflected in the following themes: *perceiving the manikin as a real patient*, *saving my patient's life, feeling like a real nurse*, and *feeling relief after mounting stress*. It was *a surprisingly valuable learning experience* as reflected in the following themes: *increased awareness of the art and science of nursing, increased recognition of the importance of teamwork, feeling more prepared for clinical*

practice, and *wanting more simulation experiences*. These themes contribute to a thick, rich, description of the phenomenon and help us better understand the lived experience of HFS.

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Appendix A

Guide for Discussion with Clinical Instructors

Thank you for meeting with me today.

As you are aware, I am at the thesis stage of my graduate studies, towards a Master of Nursing degree, through Memorial University. I plan to examine the *Lived Experience of High-Fidelity Pediatric Simulation for Undergraduate Baccalaureate Nursing Students.* I hope to interview undergraduate baccalaureate nursing students after they participate in the simulation scenario as part of your clinical pediatric course. The purpose of this meeting is to explain the study and ask for your help in the recruitment process.

First, the purpose of this research is to examine the undergraduate baccalaureate nursing students' lived experience of high-fidelity simulation as part of their undergraduate pediatric clinical experience. High-fidelity simulation is a newer teaching method that has progressively been incorporated into nursing education as a means of meeting increasingly high demands on educational programs. Increased enrolment and decreasing inpatient pediatric admissions have influenced this change. My study is being undertaken at a time when there is insufficient information available on this topic, as there are only two known studies to date. I anticipate the findings from my proposed study will provide information that can be used to support students and to facilitate learning by this teaching and learning modality. The proposed research will address the following research question: What are the essential themes of the lived experience of nursing students who participate in a high-fidelity simulated clinical pediatric nursing care situation?

It is important to inform you that students have the right to participate or not in the study and that participation is completely voluntary. In addition, deciding to accept or decline participation in the study will in no way affect the students' academic achievements or progress. Students who agree to participate in the study will be asked to talk about their experiences with the simulated pediatric clinical activity. This will involve one face-to-face interview, which will take approximately 60-90 minutes, and a follow up telephone interview lasting approximately 15-30 minutes. Students who agree to participate are free to withdraw from the study at any time for any reason should they change their mind about participating.

Additionally as I am a faculty member at this school of and have taught all of the students previously, this can potentially affect the relationship between the participants and me, the researcher, as they may perceive me as an authority over them. Every measure will be taken to minimize any perceived power and authority relationship. I will notify students who are interested in participating in the study that to the best of my knowledge I will not be teaching them in the future. Therefore, I will not be in a position of authority or have an ability to determine course grades. I also will reinforce the fact that participation in the study is completely voluntary and choosing to participate or not participate will in no way influence his or her academic achievement.

Secondly, I am seeking your assistance in facilitating the recruitment of students to my study. At the end of the simulation scenario in your pediatric clinical course, I would like you to talk to the students about my study. If you agree to help in the recruitment, you will have the following responsibilities:

1. Inform the students of the study, it's purpose, and process (directly based on information I will provide to you and this is attached),
2. Pass out a cover letter, summary of the study, and a consent form for initial contact by researcher (all of the required documents will be provided to you),
3. Collect the sealed drop box that will be provided to you (this sealed drop box is for students to place their sealed consent form for initial contact by researcher in). You will not be able to access the forms to know who agreed to be contacted by me to be provided with more information. I will collect the drop box from you after you have collected the forms.

Are there any questions or concerns?

I am very appreciative of your willingness to meet with me today and to listen to the information I provided. In addition, I would like to thank you for your consideration of my request. Should you require any further information from me, I am available at [redacted], or to speak with one of my thesis co-supervisors, please call Dr. Sandra Small at (709) 777-6973 or Dr. Cynthia Murray at (709) 777-6529. Thank you again for your help with this process.

Appendix B

Information Guide for Clinical Instructors

Please read the following to the students in your simulation group:

I want to inform you of a study that is being carried out by one of our faculty members here at the school of nursing, Peggy Colbourne. The study is titled "*The Lived Experience of High Fidelity Pediatric Simulation for Undergraduate Baccalaureate Nursing Students: A Hermeneutic Phenomenological Study"* and she is conducting it as part of the requirement for a Master of Nursing degree at Memorial University. Since the purpose of the research study is to examine nursing students' experiences with the high-fidelity simulation, you are being asked to consider participating in the study. The study is being carried out at a time when there is little information on this topic. It is anticipated that findings from this research will provide information to support students' learning by this teaching method.

It is important to note that participation in this study is completely voluntary and you are under no obligation to participate. As your clinical instructor, I will not be able to access the forms in the drop box to know who agreed to be contacted by the researcher, nor will I know who has decided to accept or decline participation in the study. Also, deciding to accept or decline participation in the study will in no way affect your standing or final grade in this clinical course, or in the nursing program in general. If you decide to participate all information you provide will remain private and confidential and will be accessible only to Peggy Colbourne, the two Memorial University faculty members who are supervising her research, and the transcriber who will have access to the data for transcription purposes.

Here are a letter about the study, summary of the study, and consent form to sign if you are interested in the study and want to be contacted by Peggy Colbourne. These materials provide more information about the study. Please follow the instructions on the consent form. Once done please place your completed or uncompleted form in the envelope and seal it. Then place the sealed envelope in the sealed drop box on your way out of the classroom. This drop box is sealed and only Peggy Colbourne has access to it.

If you have any further questions or would like more detail about the study, you can contact Peggy Colbourne at [redacted].

On behalf of the researcher thank you for taking the time to learn about the study.

Appendix C

Cover Letter Given to Participants

January-March, 2012

Dear Nursing Student:

Thank you for agreeing to review the material about the study on nursing students' experiences in a pediatric clinical simulation scenario. Memorial University's Interdisciplinary Committee on Ethics in Human Research (ICEHR) and the School of Nursing have approved this research.

I am asking students to share their experiences in order to explore their thoughts and feeling regarding the simulated pediatric clinical experience. If you agree to participate in the study there will be one face-to-face interview, which will take approximately 60-90 minutes, in which I will ask you questions about your experience. After the interview data from the study are analyzed I will contact you by telephone for a follow-up telephone interview. The telephone interview will last approximately 15-30 minutes. The purpose of that interview is to clarify any points discussed during the first interview and obtain further information from you about your experience, if necessary. The purpose also is to discuss the study findings with you and ask for feedback from you about the findings.

Attached to this letter is a summary of the study and a consent form for you to sign indicating whether or not you wish to be contacted further about the study. This consent form is not about agreeing to participate in the study, rather, it indicates your consent to be contacted by me in order to provide you with more information about the study. Please read the summary of the research study and then fill out the consent form. Once done please place your completed or uncompleted form in the envelope and seal it. Then place the sealed envelope in the sealed drop box.

If you require more information about the study and the extent of your involvement, please contact me, Peggy Colbourne, the principle researcher, at [redacted] or call collect to that number.

If you have chosen to be contacted for further information regarding this study, I will contact you within the next 4 weeks to discuss the study further. If you have chosen to decline receiving more information on this study, I want to thank you for taking the time to review the information package.

Thank you.

Sincerely,

Peggy Colbourne, BN RN
Principle Researcher

Appendix D

Summary of Research Study

Study title: The Lived Experience of High-Fidelity Pediatric Simulation for Undergraduate Baccalaureate Nursing Students: A Hermeneutic Phenomenological Study

Principal investigator: Peggy Colbourne BN RN

Objective of the study:

1. To develop an understanding of undergraduate baccalaureate nursing students' perspective on pediatric clinical simulation.
2. To gain an in-depth understanding of nursing students' experience with pediatric clinical simulation.
3. To extend knowledge about the use of clinical simulation as a teaching/ learning strategy in undergraduate nursing programs.

Rationale for the study: Clinical simulation is a teaching/learning strategy used in nursing education to promote and enhance learning. However, limited research has been completed on the experience of nursing students involved with pediatric clinical simulation. Research on this topic can provide a better understanding of student experiences with clinical simulation and could provide information to meet the learning needs of nursing students.

Brief description of the study: The purpose of this study is to understand nursing students' experiences with pediatric clinical simulation. Each student will be asked to participate in a face-to-face interview. The interview will be at a time convenient for the student, and it will last approximately 60 to 90 minutes. During the interview, I will ask you questions about what the simulation experience was like for you, your thoughts and feelings about it, and your thoughts about simulated learning. I also will ask questions about your age and educational background.
The interview data will be analyzed and following this, the follow up telephone interview will take place. I will contact you by telephone for a follow-up telephone interview within six months of the initial interview. The telephone interview will last approximately 15-30 minutes, and I will ask you questions to clarify or expand on points raised in the first interview, and I will discuss the preliminary findings with you. I will ask you to provide feedback with respect to the fit of the findings with your experience.

Consent to participate in the study: If you decide to participate, I will ask for your written consent prior to the first interview. Although consent indicates your willingness to participate in the two interviews, it is important to note that should you change your mind about participating in the study, you will be free to withdraw at any time without having to give a reason. Further, you will be free to decline to answer any questions asked during

the interviews. All information collected from you will be kept confidential by me, the two Memorial University faculty members who are supervising this study, Dr. Sandra Small and Dr. Cynthia Murray, and the transcriber who will have access to the data for transcription purposes.

Your clinical instructor will not know who has decided to accept or decline participation in the study. Also, deciding to accept or decline participation in the study will in no way affect your standing in the pediatric clinical course or nursing program or your final grade in the pediatric clinical course.

Proposed starting date: February, 2012

Appendix E

Consent Form for Initial Contact by Researcher

Instructions:

Please answer all questions. By answering the questions, you are providing or not providing your consent for me to contact you to give you further information about the study. Your consent on this form does not indicate your consent to participate in the study. It means that you give permission for me to contact you to discuss the study further. If you agree to being contacted, you may still decline to participate in the study after I speak with you. Any question or concerns you might have can be directed to me at [redacted]. Thank you for completing and returning this form.

Please answer the following questions in the areas provided. Please indicate your yes/no answer by placing a check mark or X in the box to the right of the answer.		
1. I am currently a third year undergraduate baccalaureate nursing student at the school of nursing.	YES	
	NO	
2. I have participated in a pediatric clinical simulation scenario.	YES	
	NO	
3. I agree to have Peggy Colbourne contact me to provide me with more information on the study.	YES	
	NO	

_____ _____

Signature Date

Contact Information:

(For researcher to use to make contact with you)

Telephone Number _____

Cell Number _____

Alternate Number _____

Email address _____

Please place completed form in sealed envelope and then place it in the sealed drop box.

Appendix F

Interview Guide

First, I need to ask a couple questions about you. This information will be combined with information from other participants in the study and used only to describe the study participants as a group.

1. What is your age? _____
2. How many years of education do you have since completing high school, including university and any college? _____Do you have a prior university degree or college diploma? _____; what degree or diploma? _____

Male or female: _____

Now, as we talked about, I am interested in your experience with the pediatric clinical simulation scenario you participated in as part of your nursing course. I would like you to take some time to reflect upon the experience and share with me your perceptions of this experience. Please reflect upon the experience from the time you learned you would be taking part in a simulation scenario until now. You can share any thoughts, feelings, and ideas about your experience. Feel free to talk about whatever comes to mind.

Could you please tell me about your experience with the pediatric clinical simulation?

Examples of probes/questions that may be asked to facilitate the interview:

1. Think back to when you first learned you would be taking part in a simulated clinical experience and what you thought of it then? What do you think of it now?

2. Tell me about your experience with pediatric simulation? **Probes:** Was there anything that left a lasting impression? Can you recall a significant event that happened?

3. How do you feel about pediatric clinical simulation in general? **Probes:** What are some of the positives? What are some of the Negatives?

4. How has this experience influenced your learning? **Probes:** How did your clinical instructor influence your learning? How did your peers influence your learning? How do you feel about the scenario being ungraded? How did the scenario help you link theory to practice? How did the prerequisite work influence your learning? How did debriefing influence your learning?

5. How would you rate the overall pediatric clinical simulation experience? **Probes:** Are there particular aspects that could be improved? What could be different about the

experience? How did the clinical instructor influence this experience? How did your peers influence this experience? How did interacting verbally and non-verbally with the manikin influence this experience? How did the videotaping of the scenario influence this experience? How did the simulation laboratory influence this experience? How did the realism of the scenario influence this experience?

Are there any other comments or thoughts that you would like to share with me about your experiences with pediatric clinical simulation?

Appendix G

Informed Consent Form

MEMORIAL UNIVERSITY

School of Nursing

Memorial University of Newfoundland
School of Nursing,
300 Prince Philip Drive
St. John's, NL
A1B 3V6

http://www.mun.ca/nursing/

Informed Consent Form

Title:	The Lived Experience of High-Fidelity Pediatric Simulation for Undergraduate Baccalaureate Nursing Students: A Hermeneutic Phenomenological Study
Researcher(s)	Peggy Colbourne BN RN Master of Nursing Student Memorial University-School of Nursing [redacted] Home: [redacted], Mobile: [redacted], Work: [redacted] ext. [redacted] Email: [redacted]

You are invited to take part in a research project entitled "The Lived Experience of High-Fidelity Pediatric Simulation for Undergraduate Baccalaureate Nursing Students: A Hermeneutic Phenomenological Study"

This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study at any time. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, Peggy Colbourne, if you have any questions about the study or for more information not included here before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Introduction:

As part of my Master of Nursing thesis at Memorial University, I am conducting research under the supervision of Dr. Sandra Small and Dr. Cynthia Murray. I am currently a nursing instructor at the school of nursing. I have a research interest in student learning and teaching. Simulation is a teaching strategy used in nursing education to enhance learning. Increased nursing student enrolment and decreased inpatient pediatric admissions have resulted in the need for simulation learning for pediatric nursing. However, limited research has been completed on the experience of nursing students involved with pediatric clinical simulation.

Purpose of study:

The purpose of the study is to examine nursing students' experience of high-fidelity pediatric clinical simulation. It is expected that the findings from this study will provide a better understanding of student experiences with clinical simulation.

What you will do in this study:

Your participation in this study involves completing two interviews with me.

The first interview will be face-to-face. During the first interview, I will ask you questions on:

- your experience with the pediatric clinical simulation that was part of your clinical course;
- what the simulation experience was like for you;
- your thoughts and feelings about it;
- your thoughts about simulated learning; and
- your age and educational background.

The second interview will be over the telephone. The purpose of the second interview is to have you:

- comment further on any points made during the first interview, if that is needed;
- answer any questions about the topic that might have been missed during the first interview; and
- comment on what I have found in the study up to that point.

Length of time:
The first interview will last about 60 to 90 minutes. The follow up telephone interview will last about 15 to 30 minutes. The second interview will take place within about six months after the first interview.

Withdrawal from the study:
You have the right to withdraw from the study at any point and for any reason. You do not have to provide any reason for doing so. Withdrawal from the study will not have any negative effects for you as a student.

If you wish to withdraw from the study after data have been collected from you, I will ask you if I may use the data you gave up to that point. If you prefer that the data not be used, I will exclude it from the study. I will not use it in any manner.

Possible benefits:
There are no benefits to you from participating in this study. It is expected that your participation will increase knowledge about the experience of clinical simulation. It also is possible that the findings will provide information that can be used to help students learn by this teaching method.

Possible risks and inconveniences:
There are no expected risks or discomforts for you as a result of being in this study. If you find that there are questions you would rather not answer, you are free to make that choice. You are not required to provide any reason for doing so. The interviews will be planned for a time that is most suitable for you.

Confidentiality and Storage of Data:
All information collected about you for this study will be kept confidential, unless the law or the ethics committee that approved this study requires release. Only I, the transcriber (only while he or she is doing the transcription), and my supervisors will have access to study data. The information you give will not identify you by name. Instead, it will be given a code number. Your name or other identifying information will not be used in any presentations, reports, or publications about this study. Paper copies and digital recordings of the data and consent information will be kept for 5 years after the findings have been reported. Your information will be stored at the School of Nursing.

Recording of Data:
With your permission, the interviews will be digitally audio recorded.

Reporting of Results:
The findings from this study will be reported in a thesis. This is a requirement of my program of study. The thesis will be accessible through the Memorial University library. I expect to publish the findings in a journal and report the findings at presentations and conferences. These findings will be reported in a summarized form and might contain

some direct quotations of your experiences. None of the direct quotations will be able to be linked to you in any way.

Sharing of Results with Participants:
You will be invited by email to a presentation on the study's results. Other students at the School of Nursing also will be invited. This presentation possibly will take place in December 2012, at the School. Copies of the presentation will be available to you at the presentation. You can also request a summary of the study findings by emailing or telephoning me.

Questions:
You are welcome to ask questions at any time during your participation in this research. If you would like more information about this study, please contact:

Peggy Colbourne BN, RN
Graduate Student
Memorial University - School of Nursing
Email: [redacted]
Phone: [redacted]

OR

Dr. Sandra Small, RN, BN, MScN, PhD
Associate Professor
Memorial University- School of Nursing
ssmall@mun.ca
709-777-6973

Dr. Cynthia Murray, BN, MN, PhD
Assistant Professor
Memorial University- School of Nursing
cindym@mun.ca
709-777-6529

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research. It is in in compliance with Memorial University's ethics policy. If you have ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

Consent:
Your signature on this form means that:

- You have read the information about the research.
- You have been able to ask questions about this study.
- You are satisfied with the answers to all your questions.
- You understand what the study is about and what you will be doing.
- You understand that you are free to withdraw from the study at any time, without having to give a reason. Doing so will not affect you now or in the future.

- You understand that any data collected from you up to the point of your withdrawal will be destroyed if you do not want it used in the study.

If you sign this form, you do not give up your legal rights. The researchers still have their professional responsibilities.

Your signature:

I have read and understood what this study is about. I appreciate the risks and benefits. I have had adequate time to think about this. I have had the opportunity to ask questions. My questions have been answered.

☐ I agree to participate in the research project. I understand the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation at any time.
☐ I agree to be audio-recorded during the face-to-face and telephone interviews.
☐ I do not agree to be audio-recorded during the face-to-face and telephone interviews.
☐ I agree to the use of direct quotations in any report or publication on the study findings. I understand that any quotations used will be altered as necessary to make them anonymous and my name will not be used in any manner in any report or publication of the study findings.
☐ I do not agree to the use of direct quotations in any report or publication on the study findings.

A copy of this Informed Consent Form has been given to me for my records.

_____ _____

Signature of participant Date

Researcher's Signature:

I have explained this study to the best of my ability. I invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

_____ _____

Signature of Principal Investigator Date